ENVIRONMENTAL ASSESSMENT BOARD

Ontario

ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 54

DATE: Monday, September 9, 1991

BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

EARR & ASSOCIATES REPORTING INC.

(416) 482-3277

2300 Yonge St., Suite 709 Toronto, Canada M4P 1E4

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act, R.S.O. 1980, c. 140, as amended, and Regulations thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro consisting of a program in respect of activities associated with meeting future electricity requirements in Ontario.

Held on the 5th Floor, 2200 Yonge Street, Toronto, Ontario, on Monday, the 8th day of September, 1991, commencing at 10:00 a.m.

VOLUME 54

B E F O R E :

THE HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

S T A F F :

MR. M. HARPUR	Board Counsel
MR. R. NUNN	Counsel/Manager, Informations Systems
MS. C. MARTIN	Administrative Coordinator
MS. G. MORRISON	Executive Coordinator

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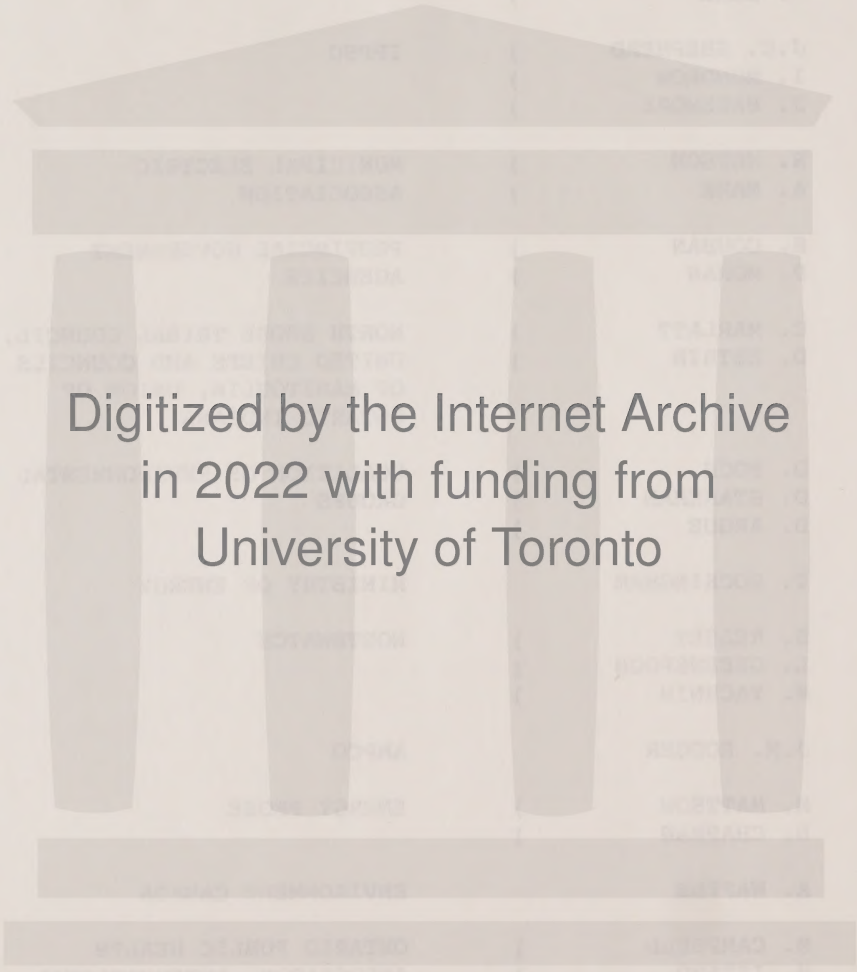
G. GRENVILLE-WOOD		SESCI
D. ROGERS		ONGA



A P P E A R A N C E S
(Cont'd)

H. POCH) J. PARKINSON)	CITY OF TORONTO
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F. MACKESY	ON HER OWN BEHALF
M. BADER	DOFASCO
B. TAYLOR) D. HORNER)	MOOSONEE DEVELOPMENT AREA BOARD AND CHAMBER OF COMMERCE

INDEX of PROCEEDINGS

L I S T o f E X H I B I T S

L I S T o f E X H I B I T S

LIST of UNDERTAKINGS

---Upon commencing at 10:03 a.m.

THE REGISTRAR: Please come to order. This hearing is now in session. Please be seated.

THE CHAIRMAN: Mr. Campbell?

MR. B. CAMPBELL: Thank you, Mr. Chairman.

I advised Board staff late last week, and I wish to advise the Board formally now, that Ms. Mitchell, for medical reasons, is unable to continue. She, on the advice of her physician, has been told that she is not to continue in these proceedings.

I spoke to Energy Probe's representative about this late last week and was advised by Mr. Mattson that this was not a problem, as far as they were concerned.

We have a process in place, whereby at least in some areas support people have been involved in the preparation of the panel and have been present through a panel's evidence. In this case we are fortunate in that Mr. Ian McLellan has been here throughout the presentation of the evidence of this panel.

Mr. McLellan, at the moment, is sitting in Ms. Mitchell's spot, closest to the panel. He's the new face on the panel.

The solution that I propose is that Mr. McLellan take Ms. Mitchell's place in the panel. He is a program superintendent in the residential agricultural department of the demand management branch, works closely with Ms. Mitchell, has some different detailed program responsibilities. He has been active in the demand management branch, in the residential agricultural area ever since the branch was formed, and we will be prepared either later today or tomorrow to file our normal curriculum vitae in this situation.

As I say, counsel for Energy Probe has no objection to us proceeding in this way, and I, of course, raise it today for a couple of reasons. First of all, to get the Board's consent to proceeding in this way, subject of course to responding to any submissions that any of my friends may wish to make.

I should add that I have spoken to Mr. McLellan about the testimony given by Ms. Mitchell. He is quite content to adopt that testimony as his own. He will, of course, respond to questions on it in his own inimitable way, but he is quite content to adopt that testimony. I put this forward to you really as a practical solution to a rather unfortunate situation.

THE CHAIRMAN: Thank you.

Do any other party wish to make any submissions on Mr. Campbell's proposal?

So we will adopt that proposal and proceed now to swear the new witness in.

MR. B. CAMPBELL: Thank you, Mr. Chairman.

PAUL JONATHAN BURKE,
AMIR SHALABY,
MARION ELIZABETH FRASER,
LYN DOUGLAS WILSON,
WILLIAM OSBORNE HARPER; Resumed.
IAN DUNCAN McLELLAN; Sworn.

MR. B. CAMPBELL: Now, Mr. Chairman, we have been supplied with a variety of material or references from Energy Probe. We have kind of been scrambling to keep up. They have been coming through through the balance of last week. We have been in regular communication with Energy Probe through the balance of last week and even as late as this morning.

I believe the witnesses have most of the material, perhaps not a sufficient number of copies yet, but if there is some scrambling to catch up with the material, I'd ask some indulgence, because some of it has been only recently indicated or received.

MR. MATTSON: Thank you, Mr. Chairman. That's correct, what Mr. Campbell has stated. One new exhibit was only filed this morning. We only had it

for five members of the panel, and I believe we have another one coming for Mr. McLellan. Do you have that now, all the exhibits?

MR. McLELLAN: I believe I have.

THE CHAIRMAN: I don't believe any exhibits have been filed with the panel as yet.

MR. MATTSON: Yes, I believe they have.

MS. PATTERSON: I have got a binder.

THE CHAIRMAN: I haven't got a binder -- I just got it, this is the first time I have seen it.

MR. B. CAMPBELL: In addition to the particular exhibits, Mr. Chairman, there have been a variety of transcript references and so on, and it is all of that material as well that I have included when making my remarks.

THE CHAIRMAN: Well, is this binder going to be filed as an exhibit? Is that what you propose?

MR. MATTSON: Yes, Mr. Chairman. I'm about to do that now, read it into the evidence.

There are several documents for you this morning, Mr. Chairman, that we will be relying on during the course of cross-examination. If I might, I'd like to give them exhibit numbers and read them into the record.

First of all is Exhibit No. 278, and

entitled, the short title is "Energy Probe Argument to OEB."

---EXHIBIT NO. 278: Document entitle "Energy Probe Argument to OEB."

MR. MATTSON: Second is Exhibit No. 279, short title "Porter Commission Recommendation of Metering."

---EXHIBIT NO. 279: Document entitled "Porter Commission Recommendation of Metering."

MR. MATTSON: Third is Exhibit 280, and the short title is "Ruff Testimony," r-u-f-f.

---EXHIBIT NO. 280: Document entitled "Ruff Testimony."

MR. MATTSON: Exhibit 281, the short title is "Energy Efficiency From Sea to Sea."

---EXHIBIT NO. 281: Document edtitled "Energy Efficiency From Sea to Sea."

MR. MATTSON: Exhibit 282, Ontario Energy Board HR19 "Finding on Heat Pumps."

---EXHIBIT NO. 282: Ontario Energy Board HR19 "Finding on Heat Pumps."

MR. MATTSON: Exhibit 283, Ontario Energy Board HR20 "Finding on Demand Management."

---EXHIBIT NO. 283: Ontario Energy Board HR20 "Finding on Demand Management."

MR. MATTSON: Exhibit 284, Hydro's statement on measuring achievement of programs.

---EXHIBIT NO. 284: Hydro's statement on measuring achievement of programs.

MR. MATTSON: And Exhibit 285, letter from Bob Rae to chairman of Ontario and Quebec paper.

---EXHIBIT NO. 285: Letter from Bob Rae to Chairman of Ontario and Quebec paper.

MR. MATTSON: And finally the exhibit that we only filed with, or gave notice to Mr. Campbell of this morning, as it was an article over the weekend dated September 7, is Exhibit 286, short title "Let Market Work to Save Energy."

---EXHIBIT NO. 286: Article entitled "Let Market Work to Save Energy."

MR. MATTSON: Now, in addition to that, Mr. Chairman, we have provided Ontario Hydro with a list of our interrogatory and transcript references that we will be making throughout the course of the cross-examination. We gave those to Ontario Hydro throughout the course of last week, and some of which just came very recently, and we apologize if it has posed a problem for anybody, and it has just been a matter of sicknesses and holidays, it has been a little bit confusing, and I apologize for any inconvenience it

might cause.

THE CHAIRMAN: Interrogatories we will deal with and as they come up they will be added to the exhibit number of interrogatories referred to during the testimony.

But these will be just kept, tab 10 will be just kept for convenience and won't form part of the record.

MR. MATTSON: Thank you, Mr. Chairman. I'm new to this. Now, just procedurally, when I refer to an interrogatory number, then I don't give it a specific exhibit number?

THE CHAIRMAN: When an interrogatory number is referred to, then it gets added to the list of special exhibit numbers for interrogatories. Each panel has its own separate list of interrogatories.

THE REGISTRAR: 261.20, Mr. Chairman.

THE CHAIRMAN: 261, and the first one will be .20, when it comes up. Similarly with transcript undertakings, if any, they are added to a special list for each panel. It's just a matter of collecting them together, so they aren't scattered all through the testimony.

MR. MATTSON: Thank you, Mr. Chairman.

CROSS-EXAMINATION BY MR. MATTSON:

Q. Now, if I might begin, if I could have you look to Volume 50 of the transcripts at page 9004, and Mr. Wilson, it is Ms. Fraser, I believe that I'm referring to evidence given earlier, and that was on Monday, August 26.

At the beginning of Mr. Poch's, the Counsel for the Coalition, at the beginning of his cross-examination he referred to article that had appeared in the Globe & Mail that morning and asked a series of questions flowing from that article. This was not given an exhibit number at the time.

I can inform the panel, however that this article was or did flow from an exhibit at this hearing, which is Exhibit No. 262 that Energy Probe has filed some time ago, and was entitled "Seven Problems With Subsidized Utility Driven Conservation Programs."

Now, I have a question flowing from that. Mr. Poch asked at the middle of page 9007, and he asked of Ms. Fraser, he termed it, I quote:

"A fear that there is --"

THE CHAIRMAN: What line are you on?

MR. MATTSON: Sorry Mr. Chairman. Line 8.

Q. He quoted that:

"There is a fear that there is a conflicting motivation on the part of Ontario Hydro, maybe not on individuals, but in a corporate sense, and it is a question of the wolf in the hen house."

...

[10:13 a.m.] Now, Ms. Fraser, am I to take it that Mr. Poch is referring to the fact that Ontario Hydro - and I may be reading into this and I am just giving you the opportunity before I ask the next question --

THE CHAIRMAN: How can Ms. Fraser comment on what Mr. Poch had in mind?

MR. MATTSON: Because she then answered the question.

THE CHAIRMAN: She said she hadn't read the article.

MR. MATTSON: Yes, but then she says, "Yes, that's why we have regulatory authorities over monopolies."

THE CHAIRMAN: Perhaps you can make your question more specific.

MR. MATTSON: That's what I am intending to do, Mr. Chairman, just by putting to her what that fear was. It was never really explained, the fear.

Q. This fear is that Ontario Hydro, who has the monopoly over the supply of electricity in the province is now pursuing a program of demand management programs which might slow or put off that supply, is this the conflict that he has a concern about?

MR. B. CAMPBELL: I don't see how this witness can possibly answer what Mr. Poch's concern

was.

She then went on to have answer a specific question as to whether, when there is a monopoly, there can be a concern that the monopoly can be abused, and Ms. Fraser points out, yes, that's why we have regulatory authorities over monopolies. And Mr. Poch then goes on to advise the Board that he doesn't share the concerns expressed by Energy Probe and then moves on.

I think it is quite improper to ask Ms. Fraser what was in Mr. Poch's mind.

MR. MATTSON: Let meet me rephrase the question then, Mr. Chairman.

Q. Is it there that fear? Does that fear exist, Ms. Fraser, as I stated it, that there may be a conflicting motivation on the part of the Ontario Hydro?

MS. FRASER: A. No, and that's not my understanding of what Mr. Poch was asking. Specifically, at line 21 he restated the question and I answered that question.

Q. All right. So you don't feel that that there is that concern out there, that Ontario Hydro being the supplier of electricity in the province, is now coming forth in this Demand/Supply

Plan with pursuing demand management programs which may in fact, impede, slow down, or do away with the supply alternatives?

THE CHAIRMAN: That question is really an argumentative question. I think you can ask the witness a specific question, but there is nothing to be gained by asking questions of that nature.

MR. MATTSON: Thank you, Mr. Chairman.

Q. Ms. Fraser, when you say that's why we have regulatory authorities over monopolies, are you referring to Ontario Hydro? Are you stating that there is a regulatory authority over Ontario Hydro?

MS. FRASER: A. No, I was referring to it purely in a broad theoretical context. That's my understanding of the theories of monopolies from my Economics 101 course, and that that's one reason why we have monopolies. I was thinking of it in terms of various monopolies, Bell Canada and so on.

Q. So, you weren't then making an analogy between the private sector gas companies in Ontario and Ontario Hydro and their regulatory control by the OEB?

A. No, I was only answering the question that Mr. Poch posed to me.

Q. And your understanding is that there

isn't a regulatory authority over Ontario Hydro; is there?

A. My understand is it's a rate review process.

Q. But it's not a regulatory authority?

MR. B. CAMPBELL: Just a minute. Isn't this proceeding a regulatory authority?

If we have a specific question here, that is fine, but a generalized question about there is no regulatory authority over Ontario Hydro, first of all I think it's a legal question and if this isn't, I don't understand what we are doing here.

MR. MATTSON: I agree with Mr. Campbell. That was my next question.

Q. In fact, this is the regulatory authority over Hydro with respect to --

MS. FRASER: A. There are a lot of different regulations at Ontario Hydro, you know, the laws of the land and all the rest of it, as well as specific regulations that apply to it.

Q. But it's certainly with respect to your DSP plan, Demand/Supply Plan, this is the only regulatory authority that Ontario Hydro is subject to?

A. I don't think I can comment on that specifically.

Q. Thank you.

Now, for the panel's sake, I will be beginning my cross-examination with a series of questions involving Hydro's demand management programs and whether or not they are economically efficient, and I will begin by directing my questions then to you, Mr. Burke, and anybody who answers obviously is welcome to. I will just begin as I begin with economic principles.

Mr. Burke, Ontario Hydro's conservation programs for the purposes of the DSP are based upon the principles of economic efficiency; correct?

MR. BURKE: A. I think there are a lot of principles that have gone into selecting programs and developing the plans. One of the elements of the development of the potential induced EEI estimates was a screening for cost-effectiveness using the total customer cost test. There are other considerations and the development of programs to meet the plan then goes later on through a similar set of tests at the program level.

Q. All right. But all Ontario Hydro conservation programs in the position of Ontario Hydro are economically efficient?

MR. B. CAMPBELL: Just a moment. I am going to ask for an explanation of that terminology

because it has, as I understand it, a very specific or it can be argued that it has very specific meaning in economic theory, and if that's what we are talking about, then Mr. Burke is going to have to be giving a very long and very qualified answer. And I would ask that a specific question be asked, not simply asked for a treatise on economic efficiency.

MR. MATTSON: I have no intention of giving a treatise on economic efficiency.

Q. All I ask, Mr. Burke, is the principle, Ontario Hydro, your conservation programs, your position is that they are economically efficient. Now, what you have indicated your test is, the total customer cost test.

MR. BURKE: A. Programs in themselves are not economically efficient. In general you could not describe programs as economically efficient. Programs may have lots of results and then maybe the costs of programs or some aspects of programs could be determined to be contributing to broader speaking economic efficiency, and until you define much better what you mean by "economically efficient", one couldn't make a generic statement like that.

What I have said is I think what can be said precisely, which is that each program or each

technology that is included in our plan for induced EEI is cost-effective using the total customer cost test, and the position of the total customer cost test is a test of economic cost-effectiveness from the point of view of all of the parties involved in the choice of the customer, the utility, and all of the members of the utility family, so to speak.

You can define efficiency in many ways over different jurisdictions and that becomes a bigger question and leads to a longer response.

Q. Okay. Is it fair to say that all of Ontario Hydro's demand management programs are cheaper than the supply alternatives according to Ontario Hydro?

A. Ontario Hydro uses the same approach for evaluating the cost-effectiveness of demand management programs and supply programs, supply options, and on that basis in order to pass the total customer cost test, the demand management programs are less than or equal to the cost of supply programs. Of course, we have this 10 per cent adder as well that is applied to certain supply options when the screening is done.

Q. Now, if you could turn to Interrogatory 4.2.22, it is a response to an

interrogatory from Energy Probe. Do you have that in front of you, Mr. Burke?

A. Yes.

Q. And the question we asked: Which market failures in electricity conservation has Ontario Hydro identified and how?

Now, in your response you initially defined market failures to mean any instance in which the normal market mechanisms had failed to result in the on optimum amount of energy conservation.

Now, implicitly in that definition, obviously Ontario Hydro planners must have first determined what the optimum of amount of energy conservation is before stating that there is a market failure; correct?

...

[10:26 a.m.] A. Yes.

Q. And that a demand management program that follows, Mr. Burke, I believe, then, if it does not have success in the marketplace that Ontario Hydro predicts, and as your answer to 4.2.2 indicates, Hydro's DM programs concepts are intervention to overcome these failures that Ontario Hydro has identified, correct?

A. I am sorry, I'm not sure I understood that question. Would you repeat that?

Q. If the program itself does not have success in the marketplace that Ontario Hydro has defined as having an optimum amount of energy conservation, then this is when when your intervention in the marketplace is justified.

A. I guess what I am having difficulty with is does the program come before or after the intervention?

MR. B. CAMPBELL: I don't understand the question. The program, as I understand it from this interrogatory answer, is the intervention.

MR. MATTSON: Well, if there is a misunderstanding, I will go back.

Q. Ontario Hydro must first determine the optimum amount of energy conservation, correct?

MR. BURKE: A. Yes, Exhibit 76 contains our estimates of the potential induced EEI that is economics, and in that sense, from our perspective, as is, I think, fairly carefully outlined there, that is the optimum energy conservation in Ontario, if we could obtain 100 per cent of the market penetration of the eligible market, and in practice we don't expect to obtain 100 per cent, but all of the measures identified in the potential induced EEI are considered economic, relative to the alternative supply options, and in that sense it is the optimum amount of energy conservation.

Q. All right, but the intervention, you have identified at the normal market mechanism, it has failed, and it has failed in that you have tested it in the market, there has been a test in the market, or the actual intervention has failed in the market.

A. Well, perhaps some of the people who are more closely involved with the programs could provide specific examples, but typically the technologies that are included in our estimates of potential have almost no penetration in the marketplace now, and their economics are such that we would not expect them to have much penetration in the marketplace under current circumstances.

Q. No, I will be getting to the

specifics later. Just the principles themselves.

Now as you have already indicated this morning, your basic screening tests, when I say basic, it is the test that each and every program must test, is the economic efficiency test and total customer cost test, correct?

A. Yes. I have tried not to use the word economic efficiency. I have used the total customer cost test deliberately, because economic efficiency, as I have said, can mean many things to many people, and it depends what you are defining efficiency about and so on.

Q. But if the program passes this test, the TCCT test, in Hydro's view it is economic?

A. Relative to the alternative supply.

Q. You have also indicated, Mr. Burke, just as a way of review on these tests, is that after it has passed this test, there a number of other tests, and we have all heard about the other tests that go into determining which programs eventually are implemented by Hydro?

A. Well, in determining the potential induced, no other tests are required. In designing programs, my understanding is that some of the other tests are considerations that are taken into account in

the design programs and how incentives, for instance, might be structured and so on.

Q. It is not just a matter of picking the demand management program, which is the most cost-effective according to the TCCT?

A. Well, as we have indicated, we are intending to get the maximum cost-effective demand management. So, if any program or technology, and it really is technologies when we are looking into the longer term, is cost-effective, then we have to pursue it in order to obtain the targets we have set ourselves, whether it is the most cost-effective or not.

Q. Now, Mr. Burke, if a demand management program has passed the TCCT test but fails in the marketplace, that's how we arrive at what we call a market failure or Ontario's Hydro's position is that there is a market failure there?

A. I can only think that you must be misusing the word program, because a program, we hope, doesn't fail in the marketplace. It is designed to succeed in the marketplace.

Do you mean if it -- well, I will let you try and explain what you mean by a program.

Q. If a demand management technology or

option, which has passed your TCCT test but fails in the marketplace, then there must be a market failure according to Ontario Hydro.

A. We would certainly look for other explanations for why that technology is not being adopted in the marketplace.

Q. But also the other alternative is that Ontario Hydro planners may have been wrong in weighing the cost of benefits in the total customer cost test, and then the test for economic efficiency or cost-effectiveness test would be unreliable, correct, if they were wrong?

A. Well, if the costs of the program or the savings, energy savings associated with the program are incorrectly specified in the application of the test, then it could lead to misleading results.

But I guess we are operating on the assumption that we have made our best estimate of costs and energy savings, and it is one of the reasons why we try to work with technologies that we have a reasonable amount of information about.

Q. But certainly you have one test, which is your market test, where it has failed, and then you have the planners at Ontario Hydro saying, "We've looked at it through our test, and it's passed,"

and therefore, whether or not you have done that test properly, and the variables that go into it really is the basis of whether or not you are right or the market is right?

A. In doing analysis for the long-term potential, the total customer cost test has been assumed to be the guide for whether a technology or measure should be included in our potential induced EEI.

When it comes down to individual programs in practice, I think there may be a lot more detailed considerations that become evident, and it could be other factors, other cost elements become apparent and are taken into account, and things that either appeared too expensive before become cheaper, and things that maybe appeared to be cost-effective before are no longer pursued.

Q. Mr. Burke, but getting back to the test, if Hydro's estimation of the optimum amount of energy conservation is wrong, just assume it is wrong, and the TCCT has overestimated the cost-effectiveness of the demand management technology, now my point is then in terms of economic efficiency, would this program no longer be economically efficient, on that very narrow sense of the word? Would it be a waste of

the public's money if you were wrong and the market was right?

A. I think one of our basic positions is that there is quite a difference between the conditions that are used in an analysis, used in a total customer cost test, and those that generally prevail in the marketplace from a perspective of how consumers make their decisions, and in fact it is one of the major reasons for undertaking the total customer cost test, that the life, using a life cycle cost approach, applying a discount rate in real terms such as used for supply planning purposes, that sort of approach that is embedded in the total customer cost test is not the typical basis for an industry or private citizen making decisions about the cost effectiveness of demand management. And one wouldn't necessarily expect there to be a sort of, if the market is right or the market is wrong, that implies something about the total customer cost test.

I'm not sure you can make any direct inferences that the market was right, if the total customer cost test was wrong. The market is acting quite differently from the basis on which the total customer cost test is being calculated, and the total customer cost test is devised in such a way that it can

make a cost-effective comparison with alternative supply options in the manner in which electric utilities do their supply planning.

Q. I appreciate that, Mr. Burke, and I'm going to actually -- we will be getting into the specifics of the test. But, theoretically, would you agree that there are two ways, and I mean Hydro has, in the past, used what they call the no-losers test, et cetera. But there are two ways that one can evaluate the cost effectiveness of a demand management option, and there may be more ways, but two ways that I would like to point to.

The first would be to use a test, such as the TCCT, and assess all the costs and benefits and determine the basis of those results, and if the pluses outweigh the minuses, it is passed.

But another way would be to have a supplier come forward with the product in the market provide it as cheaply as possible, and see if the customers take it. Those are two ways to test the cost effectiveness of an option.

A. Well, that is just point, you test two different things.

Q. Are we not --

A. It is not the same cost

effectiveness. It is what you are determining if you put a product into the marketplace is whether the marketplace is prepared to buy the product. That doesn't make the market's choice efficient, it doesn't talk about whether the marketplace was making a cost-effective choice. Because the market does not necessarily have all the information, and it doesn't necessarily operate in a neat way, like in early economic theory books, where everybody makes their decisions on the same basis. In this marketplace people don't make their decisions on the same basis, and it is for that reason that we have at least two approaches.

Q. I agree, Mr. Burke, they are not the same. And so we have the two approaches. What I am saying, though, is that they are two valid approaches to measuring cost effectiveness. Don't you agree?

A. They give you different estimates of cost effectiveness, and they give you it for different decisions that people are trying to make. The market can determine what it believes to be cost-effective under the parameters that prevail in the market at the time. The total customer cost test tells you what is cost-effective under a different set of parameters that prevail in the realm of electricity Demand/Supply

Planning. And we are trying to bridge these gaps.

Q. And the TCCT is giving you an indication of where those uptapped opportunities are, correct?

A. Relative to alternative supply options, yes.

Q. Now, Mr. Burke --

A. My point, maybe I should be clear, is there is no absolute test of cost-effectiveness.

Q. So, no absolute test, and in fact TCCT can be wrong as well.

A. It is not a question of wrong or right. It is the cost-effectiveness is always relative to something, or within a defined market or set of decision rules. It is not a blanket statement that can be made for all time, and one test determines what is cost-effective, or there is some sort of hierarchy here.

Society chooses, perhaps, to decide that certain results are more important than other results. That is, they may be more important to pass the total customer cost test than to be chosen in the marketplace. That is almost a policy choice. It is not something where someone can say it is more efficient absolutely than some other way, and that one

test somehow of what is more efficient or cost-effective is superior to another.

Q. Mr. Burke, let's not leave what is already as evidence. That is, we are not speaking of policy choices. Ontario Hydro's point is that this test, this TCCT test, if it passes, then the demand management option is cheaper than the supply option.

A. Yes, stated that way I can agree. It is cost-effective. But that result can be overturned by whether or not the technology is successful in the marketplace.

Q. But we also don't need to go into principles such as least cost planning, et cetera, that bring in other social, environmental costs, and include those in any sort of a cost-effective measure, do we? In terms of the evidence of Ontario Hydro it is clear.

MR. B. CAMPBELL: Well, it is clear what we include in the total customer cost test, and that has been gone into extensively in Panel 3.

MR. MATTSON: Thank you.

Q. Now, Mr. Burke, I believe it is in the evidence that the demand management programs of Ontario Hydro are going to raise the rates, at least in the short term for certain, correct.

...

[10:40 a.m.] MR. BURKE: A. We certainly believe that's going to be the case, yes.

Q. In the long term, I believe the evidence was that it is less clear?

A. That's correct.

Q. Now, at interrogatory, if you could turn to Interrogatory No. 4.2.27.

THE CHAIRMAN: By the way, we should give the last interrogatory a number which is 4.2.22.

MR. B. CAMPBELL: My understanding is that it would be No. 20 in Exhibit 261.

MR. MATTSON: So this will will be 21.

THE CHAIRMAN: The one that we are coming to now, I'm sorry, I didn't get the number.

THE REGISTRAR: 261.20.

MR. MATTSON: Interrogatory 4.2.27.

MR. B. CAMPBELL: That would be 261.21?

THE CHAIRMAN: Right.

MR. B. CAMPBELL: Thank you.

---EXHIBIT NO. 261.20: Interrogatory No. 4.2.22.

---EXHIBIT NO. 261.21: Interrogatory No. 4.2.27.

MR. MATTSON: Q. My only question arising from this interrogatory very quickly is, we asked for each year of the DSP forecast period including 1991, please indicate the percentage of the

annual electricity price attributable to all Hydro's DSM efforts indicate that there will be a study and it will provided on the completion. Are there any results from this study at all yet? Can anybody speak to the study itself?

MR. WILSON: A. I believe the study has been completed but I don't have the results with me.

Q. These results will be provided to the panel?

A. Yes.

Q. Do you know approximately what the numbers are in terms of rate increases?

A. No, I'm sorry I don't. As you will see, when you get the study, it relates to the demand management plan that precedes the version that we have been discussing for the last several weeks here, with the standards and fuel switching added. So, in some ways it's not as helpful as we would like it to be.

Q. Okay.

THE CHAIRMAN: Perhaps you should give this a number then as well.

MR. MATTSON: An undertaking that it being provided as soon as possible?

MR. B. CAMPBELL: Either that, Mr. Chairman, or lest we get lost in yet another generation

of run through this thing, I expect that rate impacts will be a matter that will be addressed when we are looking at the demand management and trying to integrate the overall conclusions. And quite frankly, what I would prefer is to deal with this on the basis of updated figures rather than old figures. These are not the only changes that we have to deal with. I think it is just makes more sense, and that will be available, as I indicated, somewhat later.

THE CHAIRMAN: Whenever. So, we don't lose track of it, there should be some note that it will be produced.

MR. B. CAMPBELL: I can give the Board the assurance that rate impacts, when all of the changes are incorporated into the planning, will be specifically dealt with in that material. I have already spoken to the fact that we expect to produce that material, and I can just give my friend the assurance that that will be there.

MR. MATTSON: Mr. Chairman, the only problem is that even though we understand that these will be updated and probably they will be updated in that there will be more of an effect because of the Chairman's remarks that more money will be going to demand management, but this would certainly be our

first indication of any sort of rate impact at what was the prior figures and as soon as we can get the study that's been completed, it would be helpful, understanding of course that there is an update underway. There is just no indication, whatsoever, what rate impact will be at this time.

THE CHAIRMAN: Is that any problem, Mr. Campbell?

MR. B. CAMPBELL: I assume if a study has been completed that it is available. As I said, my only problem is that I am concerned that we start dealing with a more updated, and I know that that's going to be coming along, so rather than move through two generations, I would like to focus on the latest. I know that is coming.

THE CHAIRMAN: I understand that, but I also understand that Mr. Wilson said that they had something now for the early ones, and I recognize that it would be much better to wait until we had thelater figures, but if they want them, there is no objection to producing them, is there?

MR. B. CAMPBELL: No, other than it's one more study and analysis to keep track of in trying to remember on our side. We would certainly prefer to stick with the newer one.

Those are my submissions on the matter.

MS. PATTERSON: Would there be any methodology change in the new study?

MR. B. CAMPBELL: I am not familiar with it enough to make a judgment on that. I expect that it is the changes in assumptions that are more important.

THE CHAIRMAN: It's up to you, Mr. Mattson, if you want it we can put it down on the list, otherwise we can go on.

MR. MATTSON: Certainly, Mr. Chairman, we would appreciate if we had that study.

THE CHAIRMAN: All right. Put it down as the next transcript undertaking, number?

THE REGISTRAR: 267.9.

THE CHAIRMAN: Thank you.

MR. MATTSON: Thank you.

---UNDERTAKING NO. 267.9: Ontario Hydro undertakes to provide a study on the rate impacts of demand management when completed.

MR. MATTSON: Q. Now, if I can move into the economic principles used by Ontario Hydro planners in the TCCT, in its application of demand management. One of your assessments in weighing the costs and benefits in a demand management option is to give a value to the costs associated with the customer costs; is that correct?

MS. FRASER: A. Yes, it's the cost of the measure.

Q. The measure. So, that would just be the capital cost, you are saying, of buying the measure or whatever it costs for them to receive?

A. We look at the incremental cost over the option and where we have the information about the impact that that might have on either increased maintenance or reduced maintenance or things like that, we include that. Where we don't have that information, we don't include it.

Q. So, when you say where you have that information, how often do you have that information? How often do you include it in your programs?

A. I am speaking at a program design level now as opposed to the screening level that Mr. Burke was speaking at. It would be indicated in the program concept reference document for each of the programs, all the information for each of the programs and all the analysis is included there. Off the top of my head I couldn't tell you which ones we had done specific maintenance or non-maintenance, and things like that.

I think I talked in great detail, for instance, about the street lighting program and the

impact of maintenance there.

Q. I have had a look through it, and is it fair to say, for example, in your heat pump, for example, operation you include the cost of maintenance because there is an increased cost to having a heat pump, that's an increased maintenance cost; correct?

A. I am not familiar with the heat pump program myself.

MR. McLELLAN: A. In that program it was considered that the cost of maintenance is slightly more than the system it was replacing and that was included, yes.

Q. But generally, it's the cost to the consumer in terms of weighing the values and pluses. The cost to the consumer is given basically the cost of the technology or of the program?

MS. FRASER: A. Again, it's the incremental cost over the energy efficient option.

Q. Yes. Now, would you agree that there are other costs that are incurred by the customer in implementing the demand management measure, costs that aren't included in the TCCT test?

A. As I indicated, where we don't have information we don't include that. I am not sure exactly what you mean.

Q. So, I take it then where you don't have information, is it fair to say where it's difficult to quantify these costs, then the costs aren't included where you don't have information?

A. It's difficult to quantify it. In addition, we also have a number of programs which are comprehensive such as savings by design, the guaranteed energy performance program, accelerated payback program, the load shifting program, industrial, and obviously we haven't built in all the costs individually of each of those potential measures. The volume would be too much.

What we do is we take representative measures and look at the costs and benefits there. And then, for instance, in savings by design, we will actually then on a project basis look at the costs and benefits and the maintenance of a particular project when we actually have the engineering estimates for those costs.

Q. But the accuracy of your test then with respect to customer costs is limited to the information that you have, or that is available or can be quantified.

A. Absolutely.

Q. And such costs as changing habits,

adjusting to a service of a different quality, incurring costs of time, risks or inconvenience, it's very difficult to quantify very little information?

A. Sometimes we do tests to find out some of those costs.

Q. Sometimes. Could you point to a program so I can see how that works?

A. Yes. That occurred in the compact fluorescent program with Loblaws, and that additional dates that was gathered in that test was used in the multi-retailer compact fluorescent program.

I believe there were numerous showerhead test programs that were done and information that was gained and research. All of this information again is filed in the PCRD in terms of the evolution of programs and the market research that that information was based on is also in the Registry of Customer Research that was filed in a number of interrogatories.

Q. All of these costs incurred by Ontario Hydro in terms of testing and market, and going out and trying to determine what costs are incurred by the customer, are these all included in Ontario Hydro's costs in terms of the TCCT test?

A. They are included in the overall screen that Mr. Burke talked -- that level, and we

talked in great detail with with Mr. Poch two weeks ago about the $350 figure that was used for the purpose of the Demand/Supply Plan for particular programs if we have an indication of specific research that's required, and sometimes that is indicated in a specific program, then that's included. But by and large, at the program level it's the incremental cost that we look at.

Q. Sorry, just to understand. If, in fact, Ontario Hydro then does go out and try and identify or get this information with respect to the customer-borne costs, again, are those costs included in your test in weighing the pluses and minuses of the actual cost-effectiveness of the option?

A. Where we know and can attribute them specifically to the incremental program, yes. Sometimes market research is done on a broader basis and it can't be connected to one specific program.

Q. Would that be most of the time?

A. That would be 50/50.

Q. So, that, in fact, may be one area where the TCCT may have under represented the costs?

A. I guess I would point out that when you are dealing, for instance, with a program say such as lighting, which has a net total customer cost test,

a net benefit to the total customers of over $300 million, that the $20,000 that we might pay for some market research sometimes might get lost. It is not material with respect to that.

So, it's not something that's going to make or break a particular program, spending $20,000 or not spending $20,000 on the market research. It might be critical in terms of making or breaking your program in terms of the information that we need to make sure the program works.

Q. I understand that but that is a given program and this is just one cost I am focusing on.

A. That's right.

Q. If, for example, I can give you an example, if your compaction fluorescent light bulb. In fact the Hydro representative had to go to each home to install it to ensure that it was put in a high end place, certainly if those costs were included, it would no longer be cost-effective?

A. Well, those costs are --

MR. McLELLAN: A. No, that wouldn't any longer be cost-effective. That was the reason why the the program was designed the way it was through the retail marketplace.

Q. All right. If you could turn to

Energy Probe Exhibit 283. The exhibit is the short title Ontario Energy Board HR20 Finding on Demand Management. And particularly I am looking at page 31.

Have you read, Ms. Fraser, this paragraph 3.3.15?

...

[10:56 a.m.] MS. FRASER: A. I don't see that particularly numbered that way.

MR. B. CAMPBELL: I believe the pages are out of order, Ms. Fraser.

MS. FRASER: Oh. I haven't read it in the last week.

MR. MATTSON: Q. If I can just read a sentence into the record, two sentences. And it starts:

> Secondly, the Board shares the concern of Dr. Ruff that the use of the test may result in the funding of by Hydro of uneconomic energy management programs, since the TCCT does not take into account customer costs that are difficult to quantify. In the Board's view, depending on the severity of this omission, Hydro could be including programs that are only economic because the inconvenience borne by customers is not reflected.

Ms. Fraser, would you agree with that, that that is a possible outcome, given the way that you do your TCCT tests?

MS. FRASER: A. To the extent that we don't have information that is difficult to quantify, as I have indicated, that is a possibility. However, with my understanding of all the programs that we have taken through say in the commercial sector, or the industrial sector, and I think it is also true for residential, that we have got a fair bit of room in terms of the net benefit.

As I indicated, lighting was $339 million before we would come up against, and I don't think that the customer inconvenience cost, I believe there are also as many costs on our benefits that are probably not included either, in terms of perhaps better quality lighting, those sorts of things. And I think you could probably come up with a wash in either way. I don't think it is that --

Q. Those are in fact, better lighting, in fact, are included in customer borne costs, are they not, whether there is a benefit or a negative. You don't do the informations, no way. You can tell whether or not -- they may like the lighting more, they may not.

A. No, the basis for our program with respect to lighting is that we want to make sure that quality lighting is installed, that they don't end up

with less energy service as a result, i.e., less hot water, less light.

There are cases, however, where newer technologies such as T8 lighting could improve the overall ambience of the room.

For example, instead of the cold white kind of light we have here with 34 watt energy saving tubes, a T8 light would make us all look like we have just come back from Florida and make us look very healthy. Those benefits are not indicated and not quantified.

We actually have customers that have put the case to us that they have had reduced absenteeism because they have installed T8 lighting, because people go into the washroom and look at themselves, "Well, I guess I don't look as bad as I thought." So, we don't quantify those sorts of things.

MR. BURKE: A. I'd just like to add to what Ms. Fraser is saying, that in general for screening purposes for estimating potential induced, we are quite comfortable with the fact that the technologies or the measures that we are talking about tend to either maintain or increase the quality of the service to the customer.

The R2000 house, for instance, definitely

has all sorts of extra benefits for the customer, in addition to the pure energy savings that are what is measured by the total customer cost test.

So that I think on that score adjusting to the difference in the quality of energy service is likely to be a positive, not a negative.

And secondly, I indiciated in my direct evidence the various load reduction curves. That is the plots of cost of measures versus megawatts saved. And for all sectors it is quite clear that there is a fair bit of padding. Most of the measures are measures that are very cost-effective.

There are, of course, some measures that are close at the margin, and one would have to look at those particularly carefully. But essentially, most of the megawatts that are included in the potential and in the attainable quantities have a lot of room to accommodate any of the concerns you have. But my sense is that they would rarely arise in practice.

Q. First, there are two points that I'd just ask in reply to both of you. First of all, there is no question that it's clear from the test that Ontario Hydro believes that there are more benefits than negatives, minuses, from this program. That is clear. And I'm sure that you believe that the customer

will like the product more, maybe they will like it more than the old product. But that isn't what I'm asking.

If, in fact, they are cost-effective to the customer, and if, in fact, they are going to like them more than they are going to like their old stuff, why aren't they out buying them on their own? And this is the untapped opportunities that Ontario Hydro is asking us about. What I am saying to you is you may be wrong, because you don't have the information yet, is that correct?

A. I'm trying to be quite clear.

MR. B. CAMPBELL: Just a moment, just a moment, Mr. Chairman. We did about a day of direct testimony on the various barriers that exist between moving from a potential and actually having these things implemented in the real world. And unless my friend wants this panel to repeat the day of that testimony, then I believe he has an obligation to ask much more specific questions than simply open-ended invitations to repeat what has been done, that I expect at least a day or more was spent on this in direct, and and certainly much more since then in cross already.

MR. MATTSON: No, I don't expect them to repeat direct. In fact, Mr. Chairman, I'm just asking

them questions about the direct.

Q. In areas where, for example, customer borne costs, if you don't have the information, it is not included in the test. You have now said to me that Ontario Hydro, though, feels that there may be benefits that haven't been included, that's where we are at right now. And there may be, in fact, negatives that haven't, I'm saying. And I understand that you believe the benefits outweigh the pluses. So we don't need to go back into the direct testimony. But that's undetermined. That's what I am saying, correct?

MR. B. CAMPBELL: Mr. Chairman, I can only respond to the questions that are asked. My objection is with respect to the question that was asked. These witnesses have made it perfectly clear that the kinds of concerns that Energy Probe is raising in these questions they do not believe are material. They have been perfectly clear on that.

If my friend wants to test that, fine. But an open-ended kind of question that was asked, in my submission, is a complete waste of the Board's time.

THE CHAIRMAN: Well, generally speaking arguments between counsel and arguments between the counsel and panel about principles don't help us a great deal. We understand in general what the position

that the various parties are, including this party who is here.

One can't expect Ontario Hydro to change its position as a result of the arguments that are presented to it through the means of cross examination, and really what happens in many of these cross examinations, not only this one, is that the parties give Hydro a second or third or sometimes fourth, fifth or six chance to reinforce their position. Whether that's a good thing to do, I don't know. But I think what you have to do is ask the question rather than get into arguments about the various principles. We understand that there are fundamental differences of opinion between the approach of this party and the panel about demand management philosophy. We know that.

MR. MATTSON: Thank you, Mr. Chairman.

Q. Let me put your Counsel's answer to you, then. Are the remarks of the OEB with respect that these programs, that they are only economic because the inconvenience borne by customers is not reflected, is that not material to Ontario Hydro's future test, the TCCT, or are you attempting to implement?

MR. B. CAMPBELL: Just a moment. I don't

want to be picky about this, but the OEB did not say they were uneconomic. They said there was a concern that they might be, and the panel has answered that and said any concerns of that type are not likely to be material. And they have explained why.

Now if my friend wants to test that, again, I have absolutely no objection to that. But if he's going to put to them what the OEB said, please, Mr. Chairman, they are entitled to have it right.

MR. MATTSON: Mr. Chairman, again, the question is, as it stands, I quote the OEB, and I ask if Counsel's remarks that this is not material, now he's changed it to not likely to be material, is that the position of Ontario Hydro?

MS. FRASER: It's my belief, and from my detailed examination of programs that I'm very familiar with, that the customer costs that are difficult to quantify that are cited here are not material.

MR. MATTSON: Q. All right, and in that detailed examination, why do you call it a detailed examination? You don't have the information, I believe is the evidence, correct?

MS. FRASER: A. There are some things that are difficult, to quantify. As I indicated, we haven't quantified the benefit of the T8 lighting.

There are some things that are difficult to quantify, there are some things that we do not necessarily have information on because we run comprehensive programs, so we haven't included every possible option that might be looked at.

However, what we do do is fund feasibility studies, so that the consulting engineer working for the customer can do that cost benefit study for us and for the customer. And that when we are dealing with large projects, such as under savings by design, we take another look at the particular project, in addition to the program design of the cost effectiveness tests.

But I don't think the things that we are missing in our costs and benefits right now are that material. I'd agree that there is no way in the world that we have all the information that I'd love to have to design all the perfect programs. We are in the process of this, like all utilities, still learning an awful lot. But I think we have got a pretty good basis on which to make the kinds of judgments that we have made so far.

Q. Okay, I'd like to go then to a concrete example, to your low flow showerhead, which is in your PCRD. It is page 71 to 82.

A. Could we have that page again please? And which volume were you looking at in the PCRD?

Q. Volume 1.

A. Which page?

Q. I believe it is 71 to 82, in residential. Do you have that?

A. Not in volume 1.

Q. It is program summary, April Showers, 000071, residential.

MR. McLELLAN: A. Okay.

Q. And you might also at the same time, so we can get it, pull out Interrogatory No. 4.2.23, and we'll have all the material in front of us.

THE CHAIRMAN: That is 261.22?

MR. MATTSON: Thank you, Mr. Chairman.

THE CHAIRMAN: Interrogatory No. 4.2.23.

---EXHIBIT NO. 261.22: Interrogatory No. 4.2.23.

MR. McLELLAN: I think we are ready.

MR. MATTSON: Q. Now page 76 of it, I notice that free riders is at 8 per cent, correct? Now that would mean that few people would buy these on their own accord, correct, unless Ontario Hydro intervened into the market?

MR. McLELLAN: A. That free ridership number was based on discussions with manufacturers to

find out what percentage of current sales were, the reduced flow showerheads, as opposed to the high flow.

Q. These would be for private sector manufacturers?

A. Yes.

Q. And was Ontario Hydro, after completing their test then, that it was concluded that given the optimum level of conservation, that only 8 per cent of the market had been -- or 8 per cent of the people were taking advantage of this opportunity to save money?

A. Well, given the way the showerheads were put on the market and advertised as low flow showerheads, that was the way sales were. That is not what I would consider optimal level of information to consumers, so that they could make a valid choice.

Q. There are, if we look at the interrogatory that I have cited, that is Interrogatory No. 4.2.23, interrogatory from Energy Probe, and if you will look down the Ontario Hydro response to costs include, we see the last one there is the participant cost is zero. It's one for one exchange.

MS. FRASER: A. I would point out that the information that is referred to in the interrogatory is the commercial program, not the

residential one, which you have cited in the PCRD.

Q. All right.

A. So, we are dealing with two different programs here.

Q. Have you included participant costs in the residential one that aren't included in the industrial and commercial one?

MR. McLELLAN: A. Yes, in the residential program the participant cost was approximately 75 per cent of the purchase price of the showerhead. It was a program of substantially different design than the commercial program.

Q. And that 75 per cent was money for the showerhead?

A. Yes. The program was that Hydro would offer a rebate of up to 25 per cent of the cost of a showerhead.

Q. The commercial one then referred to in the interrogatory was a give away, was it?

A. Yes.

MS. FRASER: A. That's correct. We basically used the commercial showerhead program as a door opener to get managers of hotels, motels, rental apartments, condominiums interested in energy efficiency. And so we offered to do that first as an

interstep, and it has been quite successful. We have probably got over 60,000 showerheads installed that way.

Q. And I will get to a measure of success in a moment. But first of all, it's clear that in the commercial program, as in the residential, that there were no other customer borne costs, other than the capital for -- in the residential, for example, in the 75 per cent of the cost, but in the commercial there was nothing. There were no customer costs included in your total customer cost test.

A. I am sorry?

Q. There were no other costs included in your total customer cost test attributable to the customer. In terms of the commercial, when it was given away free, you didn't include any other costs.

A. As indicated in 4.2.23, the costs here, I have just noticed an error in terms of comparing the two documents in actual fact.

If you look on page 89 of the program concept reference document, under the commercial tab, at the very bottom of the page indicates the cost breakdown in nominal 1990 dollars include the showerhead installation and the cleaning once every 15 years.

Q. So these --

A. And then the water cost savings offset that.

Q. These were in fact then, the showerhead was $10 each. Who was paying these costs, $10 each for the showerheads?

A. The total customer cost test doesn't determining who pays them. It is a comparison of costs and benefits from two different perspectives, from the participant, from the customer perspective and the total customer perspective.

Q. But with respect to the customer borne costs, there was no cost to the customer of the actual showerhead?

...

[11:15 a.m.] A. No. Showerheads, the cost to the customer was that he had to provide us with the showerheads that were taken out of his facility, in return for the new ones, and we did this for a couple of reasons: One, to ensure that they were actually installed and not ending up someplace else, and secondly, to ensure that the savings then would be there in that the materials were properly either disposed of or recycled or reclaimed, depending on the actual materials in the goods.

Q. Now, you have put for installation $2 for showerhead and cleaning $1, and this is in the commercial program. Are these included in the residential program, these maintenance costs?

MR. McLELLAN: A. No, we didn't consider that there was any incremental cost incurred by the homeowner in installing these showerheads, because virtually all of them installed it themselves.

Q. So, with respect to the residential consumer then, these customer costs weren't included, those you have identified nor any others?

A. Installation and maintenance costs were not included, no.

Q. Now, when the Ontario Hydro Energy Board mentions inconvenience, installation hassle, for

example, a number of things that go along with installing a low flow showerhead, would these be costs that might be an inconvenience to the consumer that aren't showing up in the TCCT?

A. Yes, you're right that it doesn't show up in the TCCT, but those were issues that we went into in quite depth in the market tests. We wanted to find out what the reactions to customers were of these showerheads and whether or not they were having trouble installing them.

When we found out through a couple of showerhead pilot programs that that was not an issue, then we proceeded to our province-wide programs.

MR. BURKE: A. I just wanted to say that the levelized costs that we are dealing with here are very low compared to the avoided cost for this option. There would have to be incredible inconvenience to make this one not work out from an economic perspective. I think we are dealing with a situation - this information is contained in Appendix A3 of Exhibit 76 - where the lifecycle costs about a half cent for this technology the way we have analyzed it, and the avoided cost about 4.6 cents. So, you have picked an example that has extremely high benefits, the way we have calculated it, and the hassle factor would have to be

extremely high to make this uneconomic.

Q. Well, Mr. Burke, if, for example, it wasn't compatible with the threads and they didn't use it, would it be cost beneficial?

A. The instance of that I will leave to Mr. McLellan to --

Q. Just the question itself, would it be cost beneficial if it wasn't installed?

MS. FRASER: A. It's a program design issue rather than a screening issue.

Q. With respect to principles, with respect to cost benefit analysis?

MR. BURKE: A. In principle, I don't know what percentage of the program assumes don't end up perfectly installed. But again judging by these numbers, you would have quite a lot of room for incorrect or incomplete installation for the program itself still to remain economic.

Q. But, Mr. Burke, getting just to principles and aside from the program, you have indicated that you don't have the specifics of the program, and you have also indicated that Ontario Hydro doesn't look at the margin of cost-effectiveness of any given program; there are other factors to be included. This program in fact --

A. We do look at the margin.

Q. But you have noted that there are many that are closer; correct?

A. You picked the showerheads, I am just giving an example that in this case there is a wide margin.

Q. I agree. But principally you don't always look at that, do you, the margin?

A. No, I guess what I said was that there are a lot of programs that have wide margins. This happens to be a particularly wide one, and there could be others that don't have as wide a margin, but I am not sure what we are getting at.

Q. That's the answer that I wanted, first of all. And the second answer then is, if they don't install it, it's not cost benefit; is it?

A. No, I think there is a distinction here between each and every individual showerhead and the program itself. The program design has to recognize the fact that some people may not install it, and that's, I am sure, something that the program designers have thought about.

Q. Right. But at the principle of the TCCT you don't include those costs, do you, Mr. Burke? You don't look at those customers?

A. No, as a matter of fact no. We take into account the technology, not the program.

MR. McLELLAN: A. But when we were designing the program and we run the TCCT at that point, the assumptions include percentage of people who will not install the showerhead and all of the other criteria at program design time.

Q. And you have indicated that those costs attributable to Ontario Hydro are not included in the TCCT. Those costs of doing the project, looking, trying to find out these costs, you don't include that in the original cost benefit analysis, do you?

MR. B. CAMPBELL: Just a moment.

MR. MATTSON: That's in the evidence, Mr. Campbell.

MR. B. CAMPBELL: I am just trying to clarify the question. The witnesses have talked about several layers at which the TCCT is applied and I just want to be clear which layer we are asking the question about here. I couldn't follow the question. We have talked about Mr. Burke for screening purposes, and these people for program design purposes, and the evidence is that it passes every time. I am not quite sure which we are talking about at this point.

THE CHAIRMAN: I think the evidence is

there is a distinction between the two and that's been given and I think we can perhaps move on to something else.

MR. MATTSON: Mr. Chairman, I am going to go, I would like to go through the costs not included, and if in fact Ontario Hydro witness says that it is included, that the cost is included and that they have done studies to define those costs, I would like to know if those costs of doing the studies, to find out if these costs are included, are also included in the program itself before we figure out whether it's a cost benefit.

THE CHAIRMAN: I would have thought they would have asked you to answer that question, but if you have got specific questions to put to them, please put them.

MR. MATTSON: There is a difficulty,Mr. Chairman, in the fact that there are different levels at which this test proceeds, and that's why I am trying to get the programs and the actual economic principle straight.

And so again, the actual costs that go towards finding out whether the pilot project has worked, what the cost customers feel about the low flow showerhead, if they have implemented, et cetera --

THE CHAIRMAN: Why don't you just ask the questions you want to ask.

MR. MATTSON: Q. These costs are not included in the TCCT; correct?

MR. McLELLAN: A. Well again, I have to say at which stage? At the program design stage, as we are preparing the program to launch out in the public, yes we include though cost. They are part of the TCCT. So, when it comes to a final yes, we will run a program or no, we won't, and this is the way we will run it, those costs are indeed included.

Now, at the previous level, at the screening level, that is something that Mr. Burke could address, I believe.

MS. FRASER: A. As I have already indicated, the $350 that was used in the Demand/Supply Plan at the screening level would include any of that kind research, program design costs, promotion, all those sorts of things.

Q. Okay. None of the costs associated with service reduction are included in the TCCT.

MR. BURKE: A. The assumption is there is no service reduction. That's one of the things that goes into the screen before we even check the economics.

Q. And that's the assumption?

A. No, I think there is usually a fair bit of evidence, because these technologies have been commercially applied. That's one of the reasons we, in fact, make this instance that we have commercial application.

There were, for instance, in the case of it T8 ballasts, economic ballasts associated with the T8 system, there were concerns from customers about negative spin-off effects of the ballasts upon installation, and so two years ago when we were doing our analysis we did not include electronic ballasts at that time because we felt that the service provided to the customer was not necessarily an improvement.

Once we became convinced that T8s could be used in conjunction with the dedicated ballasts, it did not generate harmonics in the rest of the power supply of the building and so there were no other negative spin-off effects, that the quality of the light was better and so on, we were happy to include T8 systems with electronic ballasts in our estimates of potential induced. At that point you look at economics. But until we are satisfied that the technology, in fact, offers a better quality service all around, you don't even screen it economically.

Q. Well, Mr. Burke, if your assumption is that there is no loss of service and you are basing that upon -- you say you have done a fair bet of evidence, much of it commercial application --

A. Well, in fact all of the technologies, as we have indicated, we have seen applied commercially before we use them in the estimates of potential induced.

Q. And the Water Pik example, you have indicated there is a great benefit to it, and I have picked that example because of that benefit. You have also indicated there is no loss of service.

Why doesn't everybody go out and use the Water Pik? Why does the market show that there is only 8 per cent free riders? Why are 92 per cent of the people not buying it, if you are using the commercial application?

MR. McLELLAN: A. In that case, that's the case of the investigation we did before we launched the program to find out why that was happening. That's one of the things we have to do to find out why consumers aren't buying.

It was a combination of a number of things. It was of the number of units available for sale on retailer shelves, it was the information

contained on the packaging itself, and it was just customers' perception of what they needed as a showerhead.

Now, we have designed the program to maximize information, stock availability and the elements that we thought would overcome that natural market penetration rate. And just as a little point of what happened after the program, availabilty of low flow showerheads has just exploded. They now dominate shelves in stores whereas it was only a low percentage before. So, it's a case where you have to change the offering before you can change purchase patterns.

Q. Is it your view, then, that Ontario Hydro can do a better job marketing these Water Piks than, for example, or these low flow showerheads, for example, than the private sector was doing?

A. No. Our issues are quite different. The private sectors No. 1 issue is not demand management.

Q. But you have indicated the shelves were low, that's one of the reasons. I mean, it would seem to me they could have done itself. There is a lot of money to be made out there. It's cost-effective and there is no service reduction and they are in the business of selling them, why the difference of

opinion? Why Ontario Hydro says no, we can do it better?

A. There are a lot of showerheads on the shelves.

MR. B. CAMPBELL: Just a moment. It isn't Ontario Hydro selling these showerheads. It's not a matter of Ontario Hydro taking over the retail market.

Ontario Hydro addressed certain of the barriers. I think it is not fair for my friend to characterize it as Ontario Hydro doing the business of the retailers. There are addressing barriers is, I think, a fairer way of putting it.

MR. MATTSON: Q. Is that the case, Ontario Hydro can address these barriers better than the private market was doing prior?

MR. McLELLAN: A. No, I won't wouldn't say better. I would say we can address some specific barriers, and given our level of credibility in some energy matters, we can influence the mix of sales to change.

There were lots of showerheads on the shelves, the mix has changed somewhat.

Q. Okay. Let me move on.

THE CHAIRMAN: If you are moving on,

perhaps we should take the morning break.

MR. MATTSON: Thank you, Mr. Chairman.

THE CHAIRMAN: Fifteen minutes.

THE REGISTRAR: The hearing will recess for fifteen minutes.

---Recess at 11:30 a.m.

---On resuming at 11:50 a.m.

THE REGISTRAR: Please come to order. This hearing is again in session. Please be seated.

MR. MATTSON: Thank you, Mr. Chairman. I hope my voice holds up and my cold doesn't get the best of me.

Q. Mr. Burke, these questions again, I believe, are dealing with principles, cost-effectiveness. After Ontario Hydro has forecast that particular option, DM option is cost-effective, do you have any sort of feedback that comes in at a later date to track that, monitor that, update the information? Is that something that is done at Ontario Hydro?

MR. BURKE: A. Every year the costs and the expected energy savings for the major technologies included in the potential induced EEI estimates are re-examined, changed if necessary, updated for new results, anything, any new information. So, it's done

once a year.

Q. This would include or does it include, information that comes from the customer, for example, with respect to the satisfaction of the program or use of the program? Does that come back to you in terms of then re-evaluating the optimum level of conservation attainable?

A. I think, first of all, that we have really had one year, 1990 was the major year for which we have had program experience that was included and in that Exhibit 76 was done at the end of 1990. So, it's not like we have a long history of the process in which we take information from our programs and field experience and feed it back in to the recalculation of the potential induced. I mean, prior to that we produced several years of potential induced EEI, but that was without trying to factor in our own program experience.

My sense is that the way the process is set up at Ontario Hydro, there is a lot of room for feedback from the program people to the analysts who are doing the economic assessments of technologies for inclusion in the potential induced EEI. Where there is some development or something become known that effected the economics of certain technologies, they

would be pointed out and would be factored into the analysis that was done the next time around.

Q. And because you have only started since 1990 and you indicate not a long history, and because these are forecasts of optimum or potential level of EEI, isn't there some room for getting the customers preferences, changes of habits and quality of service, their remarks as to how they used these demand management options, and shouldn't that come back to the planners?

Isn't that something that originally when you set out what the potential induced was going to be, this information certainly might change that, that level, would it not, and would affect the cost-effectiveness?

A. I don't know.

Q. And at the other end of the spectrum you started with the market and the market in 1990, again, things change in the market. For example, rates, rates increase. Rates increase, we have had it in evidence that there is a greater tendency towards natural EEI as opposed to potentially induced. Do you then take that information and again redo your calculation so that it is still cost-effective, so that money isn't being spent by Ontario Hydro and things

that are going to happen naturally?

A. Okay. Well, the actual expenditure of money by Ontario Hydro is assessed at the program level and that is examined in detail individually each time a program is put forward.

For the estimates of long-term potential induced, yes, one thing we have to have struggle with, and I would say particularly this year for the first time is the effect that price changes may have on some of the attainable induced estimates given that higher prices may mean more of it comes about naturally. So we will have to try to quantify that.

Q. Are those mechanisms in place at Ontario Hydro so the planners are getting this information and checking, going over their original assumptions they made and re-evaluating the cost-effectiveness of these programs?

A. Again, speaking to the plan side of it, the long-term screening and so on, yes, all of the number crunching for potential induced and attainable induced occurs in the same division as the load forecast itself. And if the price goes up, I think that is what your focus was, we would certainly be well aware of that and would be trying to factor that in at the program level. ...

[11:58 a.m.] I am sure people are also aware when prices are rising and how that may affect the take up of demand management.

Q. Well, my focus, Mr. Burke, it is going to your original planning. That's done where you have your market test, where it determines a certain amount of -- the program has been successful in the market to a certain extent, and then the planners indicate that there is an optimum level of conservation available, and there is this gap in between, these uptapped opportunities.

Now, obviously, if rates increase, that market test that you had done back in 1990 is no longer relevant, is it? Because in fact with the new rate increases that market may have moved up considerably in terms of how the demand management design or program would have been -- how successful it would be in the market?

A. Well, I mean, I don't think we should debate hypothetically how much it would affect the economics of individual programs, but I think I have told you already that we are aware of the price increases, and that there will be some measures that are more likely to occur of their own accord, and I think Ms. Fraser gave examples of program designs that

relate to payback periods, where clearly one can anticipate certain measures not coming forward for financial support, because the payback is already there, given slightly higher prices.

Q. Mr. Burke, if conservation is induced, or these demand management programs are induced, and it turns out that it would have occurred naturally, is the money that was spent inducing that conservation, is that still, and you look at the public interest, is that still money well spent, in your opinion, or is that money that might have been spent better elsewhere?

A. Well, I don't think your question is clear to me exactly what you are talking about when you say the money was well spent. Whose money were you talking about?

Q. I guess Ontario Hydro's, Mr. Burke.

A. Is that what you are concerned about, the money the customer spends, or the money Ontario Hydro spends?

Q. The money Ontario Hydro is spending to induce conservation.

A. I see, and you are wondering if that is well spent if it turns out that there were free riders in our program? Is that what you're saying?

Q. Yes, more free riders than originally predicted. That the planners were wrong.

A. Well, certainly if it passes the screen successfully relative to the total customer cost test, society as a whole shouldn't suffer too much, if we have devoted more resources than we might otherwise have, had we had perfect knowledge to provision of programs.

I think what would be unfortunate is if we had uneconomic programs that -- it is hard to imagine a situation where you'd have programs that were uneconomic, yet it turned out there were a lot of free riders anyway.

Q. Well, Mr. Burke, your test is a forecast. It can turn ought to be uneconomic, can it not? Your forecasters aren't 100 per cent right. They are not 100 per cent right in supply, certainly they are not 100 per cent right in demand management, are they?

A. It is not clear to me exactly what you're talking about at this point. Maybe you could just clarify. When you say the total customer cost test as a forecast, what particularly did you have in mind?

Q. What I'm having in mind, Mr. Burke,

it is quite clear that you take a test, the market test, you then apply what Ontario Hydro forecasts to be the optimum level of conservation available. That is your test. You have determined what the optimum level is, you have used a number of factors. We have gone through that, and we have gone through the total customer cost test. What I'm asking is, quite simply, is if you are wrong, and if in fact things, there are a number of factors that change over time, certainly two most important ones would be the market changes or the forecasters were wrong.

A. I see.

Q. Now those two things, I'm saying that money spent to go after those uptapped opportunities, is that cost-effective?

A. I think we are confusing a few things here, and I will just try and explain it the way I see it. We made quite clear in direct that, while this might have been a difficult issue, that what we were doing in estimating potential induced was taking a snapshot as of today of the cost-effective measures, and that we were not going to claim that the technologies wouldn't change over time, and the economics of the individual technologies wouldn't change over time.

What we were claiming was that the best estimate we could give today of the future net impact of demand management would be derived the way we had derived it. In that context I'm not quite sure where your concerns fit, because essentially we are not forecasting the total customer cost test results for individual technologies.

We are saying this is what the situation is today. These are technologies that we know about, they are not adopted in the marketplace because they are not economic from the customer's perspective. A few customers may buy them, some customers always take advantage of -- sorry, there are always some customers who take advantage of technologies that may appear unattractive to the vast majority of customers, but nonetheless we are essentially saying the economics are assessed today. We are not trying to project the economics. What we are saying, that the estimate we get today is a good -- or the best estimate we can derive for what we could achieve in future.

Now every day people at the program level are doing estimates with current information, and they are not forecasting, I don't believe, but maybe Ms. Fraser can comment on that.

Q. Just staying on the principles

themselves, now when you said today, that is 1990 correct? When you did these --

A. Well, Exhibit 76 was done in the fall of 1990.

Q. All right. Now, we have been told there is going to be an increase in rates, maybe double digit for the next three years.

A. Yes, that is not necessarily way beyond what is already in the forecast, but it is higher than previously, yes.

Q. Higher. And on top of that we have subsidies for demand management induced programs going up at the same time. To me, the money going into induced demand management programs are going up as well. To me, the two of them shouldn't be going up together.

A. Why not? We are starting from a very low base of demand management activity, and we are rising to achieve a very substantial amount of demand management by the year 2000, and I hope it rises.

Q. But a lot of this may occur naturally, correct, with the new rates?

A. Well, not a lot is my point here.

Q. But you haven't done those tests since 1990. The feedback, in terms of doing your

initial tests, they were done in 1990. Now you have indicated that rates are increasing more than you expected.

A. What one would have to do is, because rate effects affect all kinds of things, other than simply electrical efficiency improvement. So one would have to go back through and check, are there some very low cost measures, for instance, now we would believe would happen naturally.

In 1991, this year, were we to produce a reestimate of the demand management potential, that would be included in our analysis. We would realize what the rates are now, and what they are forecasted to be, and we would make some assessment as to whether or not some elements of what are included in potential induced should now be considered natural. And I think there has to be some amount. I don't know what it is, and we definitely will be looking at that issue.

Q. Okay. That's just my basic point then, is that these figures that you have given on demand management, they really have to be relooked at again, because if you were doing it today, you might do it differently. They might show different results.

A. Yes. My point is we do it once a year, and we do a complete job once a year, and so all

kinds of other things may be different, too, and I can't tell you what the bottom line is going to be. Nor, I think, is it meaningful to try to pull out one aspect of the analysis and say, "That must mean that the next time they do their analysis, they are going for get a certain result." Lots of things change from year to year.

Q. And you do it once a year then?

A. Yes.

Q. And when is that done, and by who?

A. Well, it is done, over the summer, in a typical year. We haven't had too many of those lately. This year, a lot of the people that do it or are involved in it are sitting around this table, and a lot of the people that usually help out in that process have been answering interrogatories. So I don't know how much of the process will be done this year.

But the intent is that people involved in energy management branch system planning and the economics forecast division review the costs and performance of measures included in the potential induced, and take into account the latest information that is included in the energy management branch business plan, which in itself reflects a distillation of experience from the previous year, and this is done

over the summer and leads to an estimate that is included in the long-term load forecasts document. That is required for late fall.

Q. Well, it is the intent to be done. It hasn't been done. Your intent is --

A. Well, this year we are not -- I'm not sure where the schedule is. Last year that's how it happened, and if these hearings hadn't been going on, that's where I think we would be this year. Because every year the load forecast is produced and goes to December board meeting, and part of the primary load forecast is the latest up to date estimate of the net load impact of doing management, which Hydro goes to every extent possible to make internally consistent with all of its other assumptions. And that means explicitly that we try to take into account where electricity prices are.

Q. I believe this question is to you, Ms. Fraser. Are there any, and I have Exhibit 284, which is the only one I could find. It's a comprehension effective energy conservation -- or Ontario Hydro wants to become the most comprehensive and effective energy conservation effort in North America. Are there any other studies to track Ontario Hydro's success? Are there any that you are expecting

on line or any way that the public can keep track of how successful you are in achieving these demand management goals and what are the criteria that you are going to judge yourself by?

MS. FRASER: A. Well, if we are going to refer to OEB documentation, there were other exhibits submitted this year which detail our monitoring and evaluation processes. This was an indication of how the vision that was expressed by most comprehensive and effective energy conservation effort in North America may be measured. This does not detail our current plans at this time. Our current plans are in another document that was filed at the OEB.

In terms of measuring our results, the Exhibit 76 that Mr. Burke spoke about in terms of the actual program results, those are factored in. That's the whole basis of the net load impact forecast is to determine that.

We have a monitoring system that we put in place, we have been evolving it over time. Results with respect to those programs are filed in various programs. In my direct evidence I went over the results to date for the commercial/industrial programs and Ms. Mitchell went over the results to date for the residential programs. Is there something other than

that?

Q. In terms of Ontario Hydro and how they compare in North America, that's the most comprehensive and effective energy conservation effort in North America. So that we are able to compare Ontario Hydro's efforts. Is this the only study you have to date?

A. Well, this isn't a study, this was just--

Q. Or how you measure yourself against other utilities.

A. --these are basically an indication of this vision may be measured in a number a ways. At this point we have not determined, outside of the study that was originally filed, referred to, Exhibit 24 is the only other one, and that was done back in 1989, really took a snapshot of where we stood relative to our targets and our projected spending.

Q. And you say then that this Exhibit 284, the achievement of this vision may be measured in a number a ways it says on the back of the page, and that is no longer how Hydro is going to measure their success compared to other utilities. This is not the study that you will be -- this is not the framework by which you will are judging yourself.

A. We may be using some of these. Maybe Mr. Wilson...

Q. Mr. Wilson, do you know which ones or how Ontario Hydro plans to compare themselves?

MR. WILSON: A. The comparison of our efforts with others is going to be a very difficult task. The two key words are comprehensive and effective, and we have prepared and provided in answer to the interrogatories some ideas and suggestions for measures of comparison.

I'm not aware of any study in North America or elsewhere that really addresses the effectiveness and comprehensiveness of utility efforts. This might emerge as some sort of standard, as we move into the 1990s, and other utilities find themselves asking the same question. But this was our initial thoughts, and it is going to be a pioneering effort to do a good job on this.

Q. And is this, then, all we have to go by right now in terms of you have comprehensiveness, comprehensiveness and effectiveness and effectiveness. You have a number of factors. Is this the only thing I have to work with right now?

A. I think the interrogatory asks the question how will we determine this, and could we

identify the measures? And the answer is we think the measures will look something like this.

Q. All right. If we could go through some of these measures. Under comprehensiveness you have the number of demand management programs and services offered. Now, I take it that this will have to be looked at relative to the size of Ontario Hydro compared to other utilities? Or are we talking in terms of absolute terms here, the number of programs, period?

A. Both, I would think.

Q. Relative?

A. Both.

Q. Both. And then the second one is the demand management expenditures expressed as a percentage of the corporation's total revenues, and that's the other comprehensiveness one, and so the amount of money you spend is how you judged your success in terms of comprehensiveness?

A. I don't think that is necessarily the case, but it certainly would be a factor of interest. If we were spending 2 per cent of revenues and someone else was spending 10, it leads you to ask the next question, as to what are they trying to accomplish? How does that compare? And so one has to look down.

The reason why this list is so long is because it is such a difficult issue.

Q. I won't go through everything. Just things that I picked that I didn't see measured, and I wondered if Ontario Hydro was going to measure.

Are there going to be any measures of the cost-effectiveness of your cost-effective tests, your TCCT tests? Will there be measurements of how effective it has been?

A. Yes, one role of, one part of our approach to demand management is to evaluate, after the fact, the net impact of our programs, and to assess the costs incurred in the programs, including to the extent that we can, the private costs or the costs incurred by our customers.

Q. Will we also, does Ontario Hydro have any plans to give, put forth figures on the amount of -- the cross subsidies that result out of the TCCT tests, not -- I keep saying tests twice, but the TCC test, the level of cost subsidies that are involved, so that we have an indication of how far we are getting away from the user pay principle towards cross subsidies?

MR. B. CAMPBELL: Sorry, could I get some definition of what's been talked about in cross

subsidies? I'm not sure how that is relevant to the application of that test.

MR. MATTSON: Sure.

Q. I believe the evidence is that the rates are going up, the total bills are going down for the participating customers.

MR. WILSON: A. Yes.

Q. So obviously for non-participating customers, they are not going to be able to take advantage of the lower bills and just rates are going up. So that's, in terms of a subsidy, if they don't like the programs Ontario Hydro offers in the end, they are no further ahead.

So, just what sort of cross subsidies will be involved in terms of user pay versus the subsidies that Ontario -- the rates, how far are rates going to go up for non-participating customers?

...

[12:20 a.m.] MR. B. CAMPBELL: I am content to have that question answered. I just note that it has nothing to do with the total customer cost test, which was the original question I was concerned about.

MR. WILSON: You may be inclined to think of incentives as being the subsidies, and we find it reasonably straightforward to keep track of the incentives that are made for the cost accounting standpoint, that's not too hard to do.

The notion of subsidies is, I think, overall a more difficult concept to deal with.

Our overall strategy is to address programs to all end-uses that can be improved and to put programs together so that they are available to customers, all the customers in the province in all the sectors.

One of the measures of comprehensiveness is the - let's see if I can find it here - the customer participation rate. The notion behind that is if over 10 year period we can put forward an array of programs which effectively allows all of our customers to participate, then simply tauting up the total incentives paid is a gross over statement of any certain net subsidy, and I think it would be very, very difficult for us to address this question of subsidy,

and I frankly don't find that a useful notion.

MR. MATTSON: Q. Well, Mr. Wilson, I think that the way the programs are being implemented, the demand management programs, there is a real incentive there for a customer to participate in your programs because rates are going up and without participation they are not going to have lower bills, correct? So, even if they don't like the programs they would be crazy not to participate; correct?

MR. WILSON: A. I find that just to humourous to reply to almost.

Q. Well, Mr. Wilson, I think it is called the tragedy of the commons, is it not, you might not like it but if you don't participate you are going to be worse off anyway, and isn't it a good way to measure that in terms of the subsidies that are going from class to class? It seems to me that is a good measure, individual to individual.

THE CHAIRMAN: We don't really need your opinions on these matters; what we need are questions to this panel.

MR. MATTSON: Sorry, Mr. Chairman.

Q. I take it then that you won't be giving in terms of your measurement, of your achievement, you won't be giving those figures then,

what the cost subsidies are?

MR. WILSON: A. We will be reporting on the costs of our programs, the results obtained, and an estimate of the cost-effectiveness against the alternative supply. We will be reporting on the degree to which customers in all sectors have been able to participate, and the penetration rate of demand management programs in terms of the economic opportunity as we have defined it in the total customer cost test, and I think that's the best we can do.

Q. All right. If you turn to Interrogatory 4.2.13.

If I could have an exhibit number for that, please.

THE REGISTRAR: 261.23.

MR. MATTSON: That's interrogatory 4.2.13.

---EXHIBIT NO. 261.23: Interrogatory 4.2.13.

MR. MATTSON: Q. Mr. Burke, the question is:

> Indicate if load forecast accounts for any rebound the tendency to use more efficient appliances more than the inefficient appliance they replaced created by DSM programs, and if so, how

are they calculated and how much are they. Break out the rebound effects estimated for each conservation program. And you responded:

No, although Hydro recognizes that this can happen, the estimates of demand management net load impacts do not consider this feedback.

Now Mr. Burke, first of all, can you give us Ontario Hydro's definition of rebound? Would you agree with how it was defined there in the interrogatory question?

MR. BURKE: A. I don't have any problems with it. I think the restriction to appliances is maybe arbitrary, but essentially it captures the notion.

Q. Mr. Burke, why is it that Ontario Hydro doesn't include rebound in their forecasts of cost-effectiveness of demand management programs?

A. Well, I think that the bottom line is that we don't think that there is going to be a very substantial rebound effect because we think that through good program design we can eliminate much of the effect.

Also, conceptually from a load

forecasting perspective, it happens to be my view that when customers save energy with a more efficient appliance, that is treated essentially by them as an income effect; that is they perceive it as their real income risen because they are paying less for energy services, and the way that money is spent is not particularly dedicated to any particular appliance or necessarily energy. They feel better off and take a holiday in Florida and save energy for the province as a whole.

So, effectively, we don't see the rebound effect as -- we don't see any empirical evidence that makes us think there is a big effect here, and it certainly doesn't strike me as the way I would include it in a load forecast as something that is specific to a particular appliance just because it became more efficient.

I think that we have all observed that if people save money, because they use more efficient equipment, that we are better off and that's captured in the load forecast to a certain extent. But that it is specific to appliances and somehow leads to an increased use of that appliance, there is a limit to how much that can occur. There are all kinds of specific cases where it really wouldn't be possible to

use the appliance more just because it was more efficient.

So, the issue applies very restrictively, and empirically from the advice we have had, does not have a large effect.

Q. Okay. Now, we are only better off if its cost-effective; correct? Can we agree on that? When you say we are better off, we are only better off if it's cost-effective?

A. Yes. And again, it matters cost-effective from what perspective.

Q. That's correct. And rebound isn't included in your cost-effective test.

A. Well, what I am suggesting to you is I don't think there is a material item to include there, and that in general, the effect is pervasive. It is not something that you would identify with a particular technology, that having saved some money, because a particular technology was more efficient, and cut your electricity bills, it's not obvious to me that savings in some way indirectly results in greater energy use is something that should be attributed back to that particular program or particular technology.

Q. Well, I have to get back to one more, before I go on to that point, just one other question.

When you say that there is no empirical evidence then, are we again at the state where if the information -- the information, quite frankly, isn't available, it's difficult to qualify whether the person is going to turn up their thermostat or go take the trip to Florida; correct?

A. Well, probably the issue of whether thermostats go up or not if the house is better insulated is about the only one where there may be an issue. It's certainly the one that's most commonly cited because there is an example where if someone were to choose to spend their savings on energy directly on enery, they could, in fact, consume a fair bit more energy.

In most cases, if you were to try to respend your energy savings almost in any other way, the classic example is to buy some electronic gadget or other, the amount of electricity that you would consume having spent $500 on a VCR or something like that is minute. But if you chose to spend $500 more on electric heating in your house, then yes, in that application, you could end up having a rebound effect.

Our experience is that that does not happen. And essentially we are starting from a comfort level in houses that it is adequate, and that comfort

level is maintained. There is no great sort of the encouragement to higher comfort levels just because a house has been retrofitted.

Q. Now, Mr. Burke, if I could turn to page 8710 of the transcripts, that's at Volume 48. In your evidence in chief, and we are discussing forecasting, thankfully it's a different example than insulation. At line 3 you state:

> "To revert to our favourite refrigerator example..." and this is for load forecast, good forecasting, "...refrigerators are probably 30 per cent more efficient than they were 10 years ago, but on a per unit basis, the average refrigerator consumes roughly as much electricity as it did 10 years ago. And the reason is that the size of the refrigerator and the features on the refrigerator, which are effectively utilization effects, have offset the efficiency gain."

Could I not term that as a rebound, that the consumer is going towards larger refrigerators because they are saving more money on the efficiency appliance?

A. No.

Q. Why is that?

A. Because this is an effect that is captured in the load forecast as an income effect. Essentially what is going on here is people's incomes have been rising over this period considerably and they have chosen to spend their higher incomes. And the higher income is not simply because of the savings that they have perhaps incurred because a refrigerator become became more efficient, it's all kind of things. GDP has been growing at 3-, 4 per cent a year and per capita incomes have been rising. So, that is a trend that is captured in the basic load forecast to greater intensity of electricity use through higher incomes. It has nothing to do with the rebound effect.

Q. But through your DM programs you are saving them money, you have indicated.

A. We are contriubuting a little bit to income growth in the province if we make the province more efficient in the process, yes.

Q. And if an individual spends $100 a month on an electricity bill and now they are only spending, if your example is correct, the bill goes down to $90, they may decide, instead of buying the sweater for ten bucks, they are going to turn up the

electricity and they are going to keep the $100 a month electricity bill, that's what they can afford.

A. My hypothesis is that the $10 they save will be spent as any other $10. Once it's in their pocket or in their bank, it's as useful to them for any purpose. And to pigeon hole just energy expenditures for that $10 would be a mistake.

Customers typically spend a small proportion of their income on electricity and that would continue and that would be appropriately applied to the proportion they save through energy efficiency improvements.

I guess for the province as a whole, as I recall, it's roughly 3 per cent of provincial GDP is spend on electricity, and I don't see why typically people wouldn't spend a small portion of that saving. It wouldn't be a one more one. Almost never.

Q. But you don't include any?

A. This is getting to be about a third order effect you are talking about now. It was second order in the first place because it was the increase in income due to saving of energy through these programs, and then it's the question of how much of that is respent in a way that actually increases energy. This is a very small item indeed. And that's my position,

it's a small item, not material.

Q. Now Mr. Burke, in the 1980s I take it you would agree that Ontario Hydro had a policy of building load because the avoided costs were below the average costs, and therefore, will result basically in lower billing if people consumed more electricity, and we see the programs set out in Interrogatory 4.2.10 of Energy Probe.

If I could have an exhibit for that.

THE REGISTRAR: 261.24, Mr. Chairman.

---EXHIBIT NO. 261.24: Interrogatory 4.2.10.

MR. MATTSON: Q. I apologize, it wasn't lower billing and lower rates, it was lower rates.

Now, if we go to that exhibit.

THE CHAIRMAN: I am not sure what the relevance of this particular interrogatory to your line of questioning is to the demand management programs.

MR. MATTSON: Mr. Chairman, I will get to that. If you want me to show now, it's the policies, situation that was in place when these programs were underway and the justification for them on the evidence at this hearing, it hasn't changed. The evidence -- and I will get to that, if you would like and the principles apply --

THE CHAIRMAN: As long as they are

relevant to the consideration of this demand management program, then go ahead I just didn't quite understand where they fit in.

MR. MATTSON: Q. Now, these were - tell me, Mr. Burke, if I am wrong - but these programs were justified by Hydro at the time because avoided costs were below average rates; correct?

MR. BURKE: A. First of all, I think what we are looking at largely is advertising programs.

Q. I just have some indications of some programs, correct, and I am just asking the justification for these.

A. These are different programs at a certain level than demand management programs we are talking today which involve incentives and substantial costs incurred.

Q. I agree.

A. But, in principle, the idea that there was surplus capacity in most of the 1980s is correct, and that that lead to short run avoided costs which were below rate levels, that's correct.

Q. All right. Now we have switched to energy conservation.

MS. FRASER: A. Some of these are energy conservation as well and some are energy utilization.

Q. Yes. I know that. I may come back to something in this. I am just dealing with the principles.

Now we have switched to where Ontario Hydro is actually paying people, or paying people or to trying to convince people not to use power; correct?

MR. BURKE: A. Yes.

Q. All right. Now isn't the evidence at this hearing that avoided costs are below rates as they stand today? And I will point, in the evidence, to Volume transcript 8325, Mr. Snelson, Volume 46. It's 8325 of Volume 46. Mr. Snelson at line five says:

"Answer: The marginal costs are not falling.

"Question: But they are lower than average cost?

"Answer: At this particular point in time that appears to be the case."

Now, as a planner and as an economist what then is the basis for your demand management programs in light of this seeming contradiction?

A. It was pretty important, what I said earlier, that we weren't offering incentives for substitution just because avoided costs were below the rate, the average rate.

The tests that we have described for demand management programs indicate that there is a potential to conserve cost-effectively, and that is a result that is independent of this issue that you are describing here.

The issue that you are talking about really has to do with should we be offering incentives in a particular context, and that is, you know, we could have the situation that there was a cost-effective potential for conservation and not offer incentives, but we have actually chosen to do integrated demand/supply planning. We have been exhorted to do it by various government bodies over the years, and we are engaged in demand/supply integrated planning.

Q. Mr. Burke, as an Ontario Hydro economist, when you are say you are exhorted to do it, would you be doing it otherwise? Does it economic make economic sense?

...

[12:39 p.m.] A. It makes economic sense. I agree with the policy completely. But it still remains that there is a policy decision somewhere there.

Q. But in a very economic sense, we have, and it is very economic, we have the test, which you spoke of, the tests which says "potential to cut to be cost-effective." And those are your tests with respect to demand management, correct? Those are forecasts.

A. The application of the tests were absolutely clear. The total customer cost test is a test of cost effectiveness in the context of a Demand/Supply Plan for long term capacity. The situation in the '80s is quite different. We were not looking at the question of adding capacity in the '80s, we were looking at the question of short term utilization of surplus capacity. A very different issue, and I am not sure what relationship you are trying to derive by looking at both of them side by side.

Q. My relationship, Mr. Burke, is from the evidence with respect to avoided costs and average rate. If the Ontario consumer consumed more electricity, the rates would go down, would they not, according to this? And that is what you have been

saying for all throughout the 1980s as a justification for load building. The more we build on, the cheaper the rates are going to be, because our avoided costs are lower than our average costs. So, if we look at it strictly economically, rates would go down if people used more electricity.

A. I think you missed my point, which is that we were utilizing surplus capacity at the time, and we would not have been interested in doing it, just as we are not now, given that we are not in a situation of surplus capacity. We are looking at short-term utilization of that capacity. We are not interested in particularly adding long-term loads. Certainly we would not have paid to do so--

Q. Well, Mr. Burke --

A. --from an economic perspective.

Q. The evidence also is that with rates rising, that doesn't affect your avoided cost, does it? The fact that rates are rising doesn't affect --

A. Not per se, no.

Q. And Hydro's avoided cost, in the evidence of this hearing, isn't increasing a great deal over the next 25 years, is it?

A. As a matter of fact it does increase in the 1990s.

MR. SHALABY: A. There are all sorts of exhibits that show the pattern. It does increase towards the late '90s in our view.

Q. And would this indication from the chairman that rates are going do increase double digits over the next three years, and we have a situation now where the avoided costs are lower than average rates, do you forsee that avoided costs are going to be above average rates within the 1990s?

A. Things change, as you know, but it is probably going to maintain the relative position of being slightly below average rates.

Q. So slightly below.

A. Yes. We have seen that for different applications there, above, for different applications are below, we are talking now about the typical electricity use, which you never encounter anywhere, but that's the situation.

Q. So back to you, Mr. Burke. Then as an economist, and I'm a consumer looking strictly at this from an economic basis, the more electricity I'm consuming, that the public consumes, the lower our rates are going to go as it stands today.

MR. B. CAMPBELL: Well, just a moment. You are saying looking at it strictly from an economic

point of view. I'd like a little more definition on that. Are we talking short-run marginal costs, long-run marginal costs? What are we talking about from an economic point of view?

This is a long-range integrated plan. As Mr. Burke has said, it is not, and Mr. Chairman it is my submissions that this line of questioning has been indicated by Mr. Burke's answers not to be relevant. This is not a matter before this Board that is aimed at short-term utilization of excess capacity. That is just not the situation we are dealing with.

MR. MATTSON: Mr. Chairman, just to reiterate Mr. Shalaby's remarks, it is not just short term, but throughout the course of the '90s he indicates it is going to be relatively the same, and that is avoided costs below average rate.

MR. BURKE: Avoided costs are based on future capacity additions. It is not that we have surplus capacity from now till 2015. The reason we are here is to discuss what we are going to do to find what supply or culmination of supply and demand resources we will use to meet the increase in demand.

Effectively the relationship of rates to avoided cost is something that is of interest purely from a perspective of the utility's private bookkeeping

and is not necessarily a test of whether these measures are cost-effective from the perspective that Hydro is looking at it.

Again, I'm repeating what we have gone over many times. That is, we are looking at it from the perspective of the total customer cost test, not Hydro's perspective purely, which is the only perspective that I think you are now talking about it from. That is why we come to different results and legitimately so.

MR. MATTSON: Q. Mr. Burke, then what you are saying then is right now you don't have the approval to go ahead with these facilities, supply facilities, but certainly that's why you are here today, to ask for them in the future. And if we take that you are given approval, avoided costs are going to remain below average rates. So effectively, demand management is a stop gap, is that correct?

MR. BURKE: A. No, it is an alternative.

Q. It is an alternative?

A. It is an alternative option. One of the many options that are before this Board. It has certain limited capabilities in terms of amount, in our submission.

Q. Limited capabilities, because avoided

costs are below average rate, is that correct?

MR. B. CAMPBELL: Well, just --

THE CHAIRMAN: Let him answer that question.

MR. BURKE: No, it is not because of any relationship between avoided costs and rates that limits the potential. The potential is limited by the cost of the alternative supply and other resource options available. Rates has nothing to do with economic assessment that we are undertaking right now.

MR. MATTSON: Q. I agree, that's been -- you have been told that rates are going to go up double digit for the next three years, have you not?

MR. BURKE: A. My point is still the same. The level of rates has no impact on the long-term economics of demand side options at the upper end. It may cut off some very cheap options at the low end. But effectively it doesn't influence the vast majority of the more expensive demand management options that are still cost-effective that we are pursuing as an alternative to supply.

Q. I agree, Mr. Burke, and that's in the evidence. But certainly the avoided cost affects whether that conservation is going to be natural or potentially induced, correct?

A. Avoided cost has no impact on whether the demand management is natural.

Q. All right.

A. That is a function of price.

Q. It makes sense then to you, economic sense, at this time then that though avoided costs are below average, the average rate, that the consumer is better off rate-wise to conserve?

A. The long-run total cost to customers is reduced through the program that Hydro is putting forward, and in that sense, the provincial income is maximized, and everybody is better off.

Individual consumers, some may win, some may lose. There are income transfers involved. There is no denying that. But overall everybody is better off by pursuing cost-effective measures, using the test that we have put forward. So, when you are loosely using cost-effective and so on from different perspectives, it leads to confusion. But our perspective has been straightforward all along. It's the same one. From the province as a whole, total customer cost test, these are economic, they lead to higher income overall.

Q. Well, certainly your position hasn't been the same all along, if we look through the 1980s

and the justification for load building, versus we looked into the '90s for justification for demand management. That position has changed, you will admit that.

A. Because the situation has changed, as I said.

Q. The situation being government policy?

A. We have moved from capacity surplus to a capacity shortage situation.

Q. Again, Mr. Burke, why wouldn't your avoided costs reflect that?

A. They do. But they are still below average rate.

In the '80s our avoided costs were the operating costs of coal plants. Now our avoided costs are the capital plus operating costs of various thermal stations and hydraulic stations. They still happen to be below the rate level in the long run.

Q. I will get back to this with respect to the heat pump program being involved. I will get back to that in time.

I'd like to move on to interrogatory 4.2.14, if I could have an exhibit number for that.

THE REGISTRAR: 261.25.

THE CHAIRMAN: .25 is it?

THE REGISTRAR: Yes.

MR. MATTSON: Yes.

---EXHIBIT NO. 261.25: Interrogatory No. 4.2.14.

MR. MATTSON: Q. Mr. Burke, the question again, I'm just going through things that are not included in the cost-effective test, and this is:

"Conservation programs may act to discourage consumer initiated or price driven conservation efforts as consumers wait for incentive programs to become available to help pay for things consumers wanted to do anyway. Does the load forecast, including any accounting for the conservation, delay effects of programs?"

The response:

"No, although Hydro recognizes that this can happen, the estimates of DM net load impacts do not consider this possible change in consumer behaviour."

Again, is this because you just don't see it as having a big effect, or why is that? Why weren't we including the fact that consumers are going to wait to do things until they get paid to do them?

MR. BURKE: A. Well, essentially, from the load forecast point of view, a longer-term perspective, I don't think we are talking about much more than a few months in many cases. But we haven't included them because we don't think it is a significant effect. That is the short answer.

Q. You recognize it can happen?

A. Sure, it can happen.

Q. Do you have any empirical evidence on how -- is this another matter we just don't have the evidence available to test?

MS. FRASER: A. From our program experience, we haven't seen that to be a major factor.

That's part of the reasons I explained 10 days ago why we don't provide incentives as a general policy for 100 per cent of the incremental cost. Because the energy savings are part of that benefit, and those energy savings sometimes are much more important than what the incentive is, and if a customer is going to do it anyway, and they waited to get a few dollars from a Hydro program, they would be losing the savings overall.

We've seen that with respect to our street lighting program. Etobicoke continued on with a very large relamping program without waiting for our

incentives.

Q. Well, these people who wait, you'd call them free riders, correct? They'd be free riders?

A. The people who wait?

Q. Would wait, who would be -- wait.

A. That's part of, as I had also explained in my direct, why we design programs to minimize the number of free riders. In the accelerated payback program, if the payback is something that's less than a year and a half, we do not provide incentive for that.

So if they had waited for us to come and tell them, "Sorry, you can't have an incentive for that, you would have done it anyway," they would have lost all their savings.

With respect to new market or retrofit or renovations, if for instance in the motor program we are looking at the replacement market, when people buy a motor when it breaks down, obviously they are not going to say, "Gee, motor don't break down for another couple of months, because Hydro might increase its incentives," they won't have any say over that. When the motor breaks down, they go in and buy a new one. Because of our program, they can now find distributors stocking those motors and therefore take advantage of

the program.

Q. That's one example. But then if we look at the program summary, again, for residential heat pump program, program summary for residential, your free riders in that program are anywhere from 43 per cent to 55 per cent. Is that not correct?

MR. McLELLAN: A. Yes.

Q. And that same heat pump program was a program that was -- I was going to wait to get to this, but that we already set out at 4.2.10 -- 4.2.10, we have the heat pump program, and we have the main message saying "electricity use," and it has 43 to 55 per cent free riders. And you are saying you design it so they don't -- how do you justify 50 per cent free riders in a program?

A. Even at 50 per cent free ridership, that program is still cost-effective, according to all the tests.

Q. Because it is load building?

A. No, it is not a load building program.

Q. Well, it was a load building program.

A. Which page are you referring to?

Q. Interrogatory 4.2.10.

A. Which page in that?

Q. We have got page 1, we have the list of all Hydro's advertising campaigns. It is called "Ontario Hydro Great Saves." And then I have included the little television commercials talking about the heat pump. It has got "Howie Gaynes Show" with Eubie Wise, and it talks about the heat pump and the great addition it is, and how it is--

MR. B. CAMPBELL: This is the 1982 thing you are looking at, September 1982?

MR. MATTSON: Yes.

MR. B. CAMPBELL: I think, Mr. -- I think, Mr. McLellan's answer was in the context of the current heat pump program.

MR. MATTSON: Q. What is the distinguishing factor between the two?

MR. McLELLAN: A. I'm trying to find where it says it leaves more energy.

Q. It says it right on the front page where it says:

"Description of Hydro's advertising campaigns since 1980 are attached. The following list indicates the primary message."

A. Oh, that.

Q. It has the program, then it says

"Electricity Use."

A. Oh, I would interpret that as being use of electricity as opposed to advocating increased use. If you read the text of the ad, it doesn't advocate increased electricity use, it talks about reduction in oil bills. At that time there was quite a spread between electricity and oil, and electricity was a fair bit cheaper.

Now the documentation in the plan is about the current heat pump program, which is very much targeted at areas where gas is not available, and it takes into account that oil is not very much of a factor in the newer conversion market, in those areas where gas is not available.

Q. Well, Mr. McClenahan -- McLennen, sorry.

A. McLellan, actually.

Q. I am sorry. First of all, the heat pump program has a built-in air conditioning component to it, does it not?

A. Yes.

Q. So if you hadn't had an air conditioner before, and you put the heat pump in, you may now be using it in the summer as well, correct?

A. That's true, but the majority of

purchasers of heat pumps are drawn to it by its air conditioning component, and they realize that it may not be cost-effective, unless you credit it with having air conditioning. So you have people who are going to put in air conditioners anyway, and they go to heat pumps to offset some of their heating bills in the winter.

Q. 45 to 55 per cent of the people are going to do it anyway, correct, without your subsidies?

A. Well, that is the dynamics of that market. We talk about program design a lot. It is very difficult to get at the people who are going to do it anyway, as you say. It is very difficult to screen them out. You just, you can't ask them a question, "Were you going to do it anyway?" And give them the incentive based on that.

So that is one of those programs where you have to set the incentive level low enough so that the program will still be cost-effective, despite the free ridership.

Q. If you could turn to our Exhibit 282, it is an Ontario Energy Board HR 19 finding on heat pumps. And I will read it into the record at 3.6.10.

THE CHAIRMAN: Just one moment.

All right, go ahead.

MR. MATTSON: Q. Halfway through the paragraph it states:

"In addition, the Board is convinced that once heat pumps are installed in an area without gas service, there is an additional disincentive to future gas service due to the high front-end cost of these systems. These concerns apply principally to air source heat pumps rather than ground or water source heat pumps."

So, the fact that you are putting them in the non-gas areas really doesn't alleviate the concern, does it, that this may be, that demand management program, in fact is load building?

MR. McLELLAN: A. I don't think that that issue they mention about discouraging the expansion of gas service is an issue. We are talking about a program here that covers about 200,000 potential homes, and the two or three year target is a couple of per cent of those homes.

There is no way that the gas company losing potentially a couple per cent of their market in their expanded areas would ever be an issue in their decision. So it is not a program that will eliminate

gas markets to the extent that the gas company will decide not to expand.

Q. But the OEB would disagree with you on that.

A. Apparently they do.

Q. Okay.

MR. BURKE: A. Mr. McLellan may correct me, but it is my understanding that the program that he is talking about refers primarily to ground source heat pumps and not air source heat pumps. If it does, then the OEB's concerns aren't even in effect?.

MR. McLELLAN: A. Well, the program has three components; ground source, air source and and bi-valent. Ground source and air source are about equal in terms of targets and in fact in terms of program results from 1980.

Q. That's right, thank you. And in fact at page 53, you will note that the ground air source heat pump is a 53 per cent free rider, and the ground source heat pump is a 43.5 per cent free rider. And again we go back to the principle of the perversion that results by not including this into your test, the fact that these may meet naturally induced, people may do this on their own, 50 per cent free rider.

A. But it is included in the test. Free

ridership is a core part of the total customer cost test.

Q. I agree. But in terms of the interrogatory, going back to the initial interrogatory --

MR. B. CAMPBELL: I am sorry, are you speaking of the September 1982 advertisement? Is that what you are speaking of?

MR. MATTSON: No, Mr. Campbell. I will find it in one moment. 4.2.14.

...

[1:01 p.m.] Although Hydro recognises this can happen, the estimates of DM net load impacts do not consider this possible change in consumer behaviour.

If we have conservation programs out there paying consumers not to consume, they are going to wait, many of them are going to wait. It's a result of the program; is it not?

MR. B. CAMPBELL: I'm sorry. Mr. Chairman, the witnesses have answered this question and they said that this just doesn't happen to any material degree in the programs. They said they don't wait. I think Ms. Fraser was absolutely explicit on the point.

MS. FRASER: That's what I said.

MR. MATTSON: Q. But there is no limit then from the demand management point of view of what percentage of free riders before you are going to cut off a program obviously; is there?

MS. FRASER: A. If there are so many free riders that the program is no longer cost-effective, then obviously it wouldn't pass. It wouldn't be cost-effective and we wouldn't do it. It's as simple as that.

Q. And that is according again to your TCCT test?

A. That's correct. We use the net load

impact, i.e., that net of free riders to determine the benefit.

Q. Mr. Burke, if you could turn to Interrogatory 4.2.8.

THE CHAIRMAN: Are you moving on to a new subject?

MR. MATTSON: Yes, Mr. Chairman.

THE CHAIRMAN: We will take our mid-day break. We are adjourned until 2:30.

---Luncheon recess at 1:03 p.m.

---On resuming at 2:35 p.m.

THE REGISTRAR: This hearing is again in session. Be seated, please.

MR. MATTSON: Thank you, Mr. Chairman.

Q. I have a number of questions with respect to fuel switching. Mr. Burke, as I understand it as a result of upcoming amendment to the Power Corporation Act, Ontario Hydro will provide funds for fuel switching in their demand management programs.

MR. BURKE: A. As a result of an upcoming amendment, we are in a position to offer incentives for fuel switching of some sort, but I don't think we have claimed that we have specifics of programs at all at this point.

Q. All right. But the

cost-effectiveness of this fuel switching will be the same test will apply?

A. Yes, that was in our direct.

Q. Now, in using that test, is there not an advantage that Ontario Hydro has over the private sector gas company in terms of the valuing of service?

A. Could you be a little more explicit, what do you mean by the "valuing of service"?

Q. Sure. Ontario Hydro, I take it, doesn't pay taxes except for the GST, no profits need be made on its service and it has a guarantee on loans for capital, and these factors give it an advantage over the value of the service being provided; is that fair?

MR. B. CAMPBELL: If my friend could be a little more explicit about what he means by an advantage and no profits. Hydro has various statutory reserves that are required. It's whole corporate structure is much more along the model of a cooperative than a private corporation to be true. But I think before a generalized question like that could be answered with respect to advantages, this is a matter that I spent a considerable time last, I think it was last fall worrying about in front of the Ontario Hydro Energy Board, and it is not simple question and I think

my friend needs to be a little for specific if he is going to ask advantages and disadvantages.

There certainly are differences in the structure. As I say, Hydro as a corporate model is much more a cooperative than it is a private corporation. Questions on differences I have no objection to. Questions that speak of them in terms of advantages and disadvantages I think are, in my submission, inappropirate. Those statutory words used in 5(3) and, in my view, generalized questions of that nature are inappropriate.

MR. MATTSON: All right.

Q. In terms of the valuing of service, Mr. Burke, Ontario Hydro doesn't have to pay dividends to its shareholders; correct?

MR. BURKE: A. Yes.

Q. And the private gas companies in fact do?

A. They may, if there are any, yes.

Q. And Ontario Hydro doesn't have to pay income tax?

A. That's true.

Q. And when you are valuing the service in your cost-effective test between fuel switching, these differences certainly will affect the

cost-effectiveness of the two different services, gas versus electricity; correct?

A. There are differences in principles here. Whether in practice they make a difference depends on the situation that the gas utilities are in, I suppose.

This is a much bigger question from the perspective of a public sector corporation such as Ontario Hydro in comparison with a gas utility. It gets to what other issues there may be to determine the appropriate rate of return for that utility, so that while there may be differences on the tax grounds, they may not ultimately be what really is critical for determining an appropriate comparison between the two types of organizations.

Q. All right. Well, as you have indicated, the cost-effectiveness test, or TCCT, tries to balance these costs and benefits and hopefully arrive at a benefit at the end of the day.

Are you going to make any sort of these same sort of valuations when comparing private gas companies with Ontario Hydro, try and somehow level the playing field because of the differences between the two, the private and the public sector?

A. Well, so far as we have indicated we

do not have an equivalent value for the avoided cost for natural gas in Ontario that we have for the supply of electricity, and so as we have indicated, as a proxy we have used the price of gas forecasts by Ontario Hydro, and we have done it for two periods. We have used the price of forecast, the stream of future prices as forecast from now to 2015 and also starting just after the year 2000 and going into the future for 20 years, and we have looked at both of those, the cost-effectiveness of conversion to gas under both of those price cases.

Certainly the way we are doing it now, the issue of the difference in treatment, I think, is a very minor one. It is particularly important to realize that a gas utility, we are talking about the distribution now of gas, so the price of natural gas itself is not something that is sensitive to the sorts of considerations that you are talking about.

If we were doing an avoided cost calculation in Ontario, the valuation of the elements that we would have to try to control, that is to make them similar to the way we look at it kind of thing, that sort of element is a very small portion of the total cost of natural gas.

So, we haven't done that yet, we haven't

tried to produce an estimate of the avoided cost of gas in the future on a basis that is comparable to the way Ontario Hydro values supply options, but I would hazard that were we to do so, it wouldn't differ too much from the price as we have got now, and as a component of price, the element that is associated with taxes, for instance, is not a large component.

So, I don't know whether that is a clear answer to your question. But I am trying to suggest that most of the issues that you have raised so far don't really figure in a large way in the comparison if we are moving the natural gas company onto an equivalent basis with the way we look at supply alternatives at Ontario Hydro.

Q. Just a moment.

Mr. Burke, I take it then that Ontario Hydro has never considered, for example, putting a premium, for example, on natural gas as they have done with other -- what they see as environmentally benign options when comparing in their TCCT? There is no premium that you would intend to put on natural gas that might make a more level playing field?

A. The application of the premium so-called is to our supply options. So that is in place in applying the total customer cost test, I

believe, to natural gas as an alternative, just as it is to demand management. Maybe Mr. Shalaby can confirm that.

MR. SHALABY: A. If what you mean is giving conversion to gas, a 10 per cent premium; is that the question?

Q. Has this ever been considered by Ontario Hydro as a way of trying to look at the differences between gas, the private sector gas companies and the public sector electricity company?

A. Not to my knowledge.

Q. The 10 per cent is being applied to conservation options, to high efficiency cogeneration. But I am hearing your question to be, has it been applied to converting from space heating with the electricity to space heating with gas, and that is the area where to my knowledge I don't think it's been applied and I don't know to what extent it's being considered.

If you could turn to Interrogatory 4.2.8. 4.2.8 is a response to an interrogatory from Energy Probe.

THE REGISTRAR: That will be 261.26, Mr. Chairman.

MR. MATTSON: 261.26.

---EXHIBIT NO. 261.26: Interrogatory 4.2.8.

MR. MATTSON: Q. Basically, this interrogatory, Mr. Burke, I think we have already touched on it earlier, the statement read:

Hydro will pay up to avoided cost when the benefits to the corporation warrant this expense. Is this Hydro's current position?

And you answered that:

Hydro's position is that the amount of the incentive cannot greater than the avoided cost level and will generally be set to achieve significant penetration of the target market without attracting an undue number of free riders.

Mr. Burke, is it clear from this then that Ontario Hydro is prepared to pay for what is commonly called megawatts, pay for saved watts, megawatts?

MS. FRASER: A. Yes.

Q. So, this is a principle that you would accept?

A. You are saying that my understanding of the meaning of the word "megawatts" is from energy efficiency, and now with electrical efficiency and now

with change to the Power Corporation Act I guess we could add fuel switching.

Q. Okay. Now, just to go through the basic principles of this. Does this mean that by a consumer conserving they get to retain not only the selling price of the power but also the subsidy, or the savings that Ontario Hydro would pay them; correct?

A. Depending on how the program is designed, that's correct.

Q. This is sort of commonly called getting paid double for conserving?

A. It depends how the incentive is designed. I don't think you could make generalizations about that. That's one of the reasons I gave why we don't always, as a policy, pay the full incremental costs under the incentive.

In some cases I also explained that there are places where the bill payer, the customer, does not get any return to the energy investment, energy efficient investment because the benefits accrue to tenants or to somebody else who is the ultimate bill payer. So, those things are all very complicated.

Q. All right. But to get to the basic principle behind it, whatever the subsidy is, the price paid by Ontario Hydro to the consumer --

A. The incentive.

Q. Correct. They get that amount plus whatever amount of money they didn't spend on the electricity--

A. That's right.

Q. --that's total value?

A. Well, what we have indicated, I think a number of times, is that on average bills will go up. For those participants who participate in our programs, the price of electricity will go up, the bills will go down and then the participant will also get the incentive which is usually a capital payment up front as opposed to a payment over time, equal to the bill savings.

Q. All right. For illustrative purposes only, if the selling price was 6 cents and the subsidy paid up to that 6 cents, the consumer would have a 12 cent incentive to avoid the use of the utilities electricity; correct?

A. If that's the way the program was designed.

Q. All right.

A. It's not really designed that way.

Q. The designs then go towards the amount of money passing from the utility to the

consumer, that would be the subsidy. How you design that amount of money or how you design the limits or restrictions on that amount of money; correct?

A. Those are some of the things that you have to take into account when you are designing a program, include that calculation, yes.

Q. That amount of money that the utility pays to the consumer to conserve obviously would reflect, if the consumer participated in programs of the utility, properly participated and followed whatever guidelines you set out, whether it would be a receipt or anything else; correct?

A. That's right. If a consumer doesn't participate we don't pay him.

Q. So, the types of conservation that the consumer has an incentive to participate in, are limited to the types of programs that Ontario Hydro presents or offers?

A. No. I think the options for increasing energy efficiency are many. We were certainly aiming at programs that will cover most of them. The extent to which some of those things are natural conservation, we do them anyway, and we try and design our programs so that those aren't covered. Within the limitations, by and large, yes.

Q. But the subsidy, the amount of money being paid from the utility to the consumers, they are only going to receive that if they participate in a program of Ontario Hydro. They can't just choose their own energy conservation technique and get paid for it?

A. Well, that's actually reason why we have programs like savings by design and accelerated paybacks and the guaranteed energy performance program because we know that there are -- we don't have ultimate knowledge on all of these things and we want to increase the likelihood of, for instance, consulting engineers applying the air creativity to come up with new ways to save energy. We don't want to limit them to the ways in which we can think of from some ivory tower at Ontario Hydro.

Q. So that's your work with the manufacturers, that's your work in getting new technology?

A. There is technology, there is also just the way the programs are designed which are not specific to one particular technology or another.

Q. No, I agree with you. But the consumer is limited to those programs being offered.

A. Yes.

MR. B. CAMPBELL: Mr. Chairman, my friend

may not have been here during direct, but I believe that this panel had made it perfectly clear, for instance, Ms. Fraser has talked time and time again about the fact that Ontario Hydro's programs are not limited to specific products. That any design that can come up that's going to save energy is eligible for those commercial and indrustial programs, accelerated payback, savings by design.

It is not correct for my friend to keep assuming that there is only specific technologies that are covered. That is specifically not the case and I think the evidence has been clear on this time and time and time again.

MR. MATTSON: Thank you, Mr. Campbell.

I would disagree with that, however, because I think it is also clear that the receipt has to be --

THE CHAIRMAN: Why don't you ask the questions, I don't want to stop you from asking questions.

MR. MATTSON: Q. The individual has to provide you with a receipt or some form that they have taken part, participated in your program?

MS. FRASER: A. We have to know that they have done something. We don't say it has to be a

receipt for technology A, B, or C.

Q. But it is Ontario Hydro who determines if that program was in fact that something that they deserve a subsidy for?

A. Certainly. We don't give away money unless we have determined that it is cost-effective.

Q. Okay. Now, if you could turn to Exhibit No. 281 of Energy Probe, and the short title is "Energy Efficiency from Sea to Sea." My question, Ms. Fraser, is there a number of energy efficient programs or energy efficient devices listed here that aren't in your RCRDs and would these programs --

A. Excuse me, could you point those out to me?

...

[2:55 p.m.] Q. For example, the $25 per LED miniature incandescent or tridium gas exit sign, maximum marks five watts total.

THE CHAIRMAN: Where is that shown?

MR. MATTSON: Sorry, that is three columns in, Mr. Chairman, at the top above the picture.

MS. FRASER: That is included in the cross sector program, energy efficient lighting, which is silent on the specific technologies, but it recognizes when we developed the lighting program that we would be adding a variety of efficient lighting technologies as we moved through the five year approval of that program.

MR. MATTSON: Q. So, the PCRDs didn't set out, actually the tridium gas exit sign, we didn't know that that was the technology being used there.

MS. FRASER: A. I can't remember if that was mentioned in the background or not. What I would say is, what I would point out is this document is, I believe, an excerpt from Electrical Business--

Q. That's correct.

A. --which I believe is published by the Ontario Electrical League, and it is a restatement, a summary of some of our program materials. And for instance for this category, it provides those two as

examples. There is two other categories also get the $25 for energy efficient exit sign replacement, and that is electric/luminescent and the battery powered ones.

Q. But with respect to the tridium gas exit sign, there is no way I would have known from the PCRDs that that technology was you being used and eligible for a subsidy in demand management?

A. No, the technology that is being used essentially and wasn't -- I don't think, even included in the original approval of the energy efficient lighting program, was high efficiency exit signs. Low wattage exit signs, if you will.

In a review of our incentives, subsequent to approval of the energy efficient lighting program, we recognized that we had to move what was originally a $15 incentive for low wattage exit signs up to $25 to recognize the value of those things to our system, in comparison with what our -- what's called a retrofit kit, which uses a screw-in adapter, which is eligible for a $5 kit or an $8 kit, if it uses less than 20 watts.

Q. Maybe I should be asking this of Mr. McLellan.

Mr. McLellan with respect to the

participation in a tridium gas exit sign, has there been some controversy about whether or not this is a safe technology, or is it just the cost effectiveness of it that goes towards implementing it in your demand management program?

MR. McLELLAN: A. That question actually should be to Ms. Fraser.

Q. Okay.

MS. FRASER: A. The issue here and how we design our incentives has to do, as I said, with the fact that the $25 is for any exit sign which has a maximum of five watts total, and $8 is for anything over that, less than 20 watts.

So that's essentially the way those incentives were designed. It was silent with respect to the technology applied, and basically any product which meets the criteria and meets the Canadian Standards Association is eligible, and that includes tridium as it does miniature incandescent and LED.

Q. So, in fact, Ontario Hydro, through demand management, is in fact subsidizing tridium gas exit signs, correct?

A. We are subsidizing the removal of higher wattage signs for the replacement of lower wattage signs, yes. It happened to include tridium.

That is certainly not the objective of our program.

Q. No. Now back to the customer. If, for example, a customer decides that instead of participating in the program to get the rebate, and in fact they either don't consume, which is more they conserve, but just don't consume and cut their electricity bill, is there a subsidy or any payment from Ontario Hydro to that individual for not consuming?

A. Only if they, you know, ultimately one of the programs for fuel switching, which we haven't designed yet. The other programs have to do with electrical efficiency, more efficient electrical use. We don't pay people to go out of business, no.

Q. I didn't say to go out of business. But certainly, besides fuel switching, all your conservation measures use electricity, correct? They are consumers just consuming less.

A. They are using more efficient products, yes, or doing things in more efficient ways. The guaranteed energy performance program, which is a program, a very specialized program because it is done through energy service companies, reflects the way in which those energy service companies operate. That includes approving the operating procedures and the

training of operating and maintenance staff.

So sometimes it is the combination of those sorts of things together which makes for the savings, and we pay it in on the basis of actual performance. We certainly don't pay them just not to use energy.

As a matter of fact, under the requirements of that program, we use a bill normalization computer program called FASER, which if, for example, this building was under a guaranteed energy performance program contract, and the occupancy of the building was cut in half, we wouldn't pay the customer based on those "savings," because that would be a change in use of the building. It would have to be through more efficient use or more efficient application of resources.

Q. All right, but given the way you value, or the way you do your total customer cost test, wouldn't turning out the lights more often and cutting your electricity bill be cost-effective as well?

A. And we encourage customers to do that, that's for sure.

Q. But no subsidies for that.

A. No, we don't provide subsidies. The whole basis of the total customer cost test is to

compare the avoided cost to the incremental cost of the more efficient option. Now, if someone puts in an occupancy sensor to control the lights, and that costs them something to do that, we will provide some funding, and I believe it is on this Exhibit 281 as well; $35 for a wall switch, $100 for a ceiling mounted switch, so on for special sensors which turn off the lights automatically.

So that you don't run into situations, as you have here, where the lighting panel that's on the way into the washroom has a big, you know, "Do Not Turn Off" kind of example written on it.

Q. All right, but the person who goes for the lights, the timer that turns the lights off at certain times at night, has a double incentive. In fact they get to keep the money that they don't spend on electricity, plus they get to keep the subsidy to go into the program. But the person who decides just to turn out the light gets nothing. And in fact may in fact -- the rates may increase by not participating in demand management conservation?

A. They also get the energy saving from turning off the lights.

Q. But --

A. Now if they didn't put a piece of

equipment in to do that--

Q. They get paid once, correct.

A. --they didn't incur any cost to do it, so why we would give them a subsidy if they didn't incur any cost?

Q. It is cost-effective, correct?

A. But they didn't incur a cost. So we wouldn't have even done a total customer cost test on something where the cost is zero.

Q. But you will pay up to avoided costs, you have indicated in your interrogatory, so they may not incur costs.

A. Where we are providing incentives.

Q. So you will do it there if they participate in your program, but you won't do it if they just decide not to consume.

A. That's right, we won't.

Q. If we can go to Volume 50. I indicated earlier this morning that I would be going to the transcript at page 9004. It's 9004 to 9008.

And again, this is Mr. Poch's cross-examination, at the beginning of his cross-examination. And as I indicated earlier, it flows from Energy Probe Exhibit 262.

Now, Ms. Fraser, this was a discussion,

or a cross-examination of yourself, and you indicated at page 9005 of the transcript, line 4, that:

"Yes, we usually ask to see the paid invoice before we give them the money."

This is in reference, I take it, to the energy conservations that they make, correct?

A. That's correct, when they are participating in a program.

Q. You have in place, do you, a certain -- there is someone at Ontario Hydro who looks at these receipts and verifies them, verifies their validity?

A. That's correct.

Q. This individual also is the time and effort and et cetera of doing this, of verifying the receipts. That is a component of the TCCT.

A. That's part of program delivery costs, yes.

Q. And that's included?

A. Yes.

Q. Now, a number of problems I just wanted to put to you, and you can tell me if they are problems or not. But a number of problems that may be possible.

First of all, if a company, I think we

have dealt with this a little earlier, but if a company was going to do it anyway, they would become a free rider, correct?

A. That's what the definition of free rider is, yes. They would have done it anyway.

Q. And it's never cost-effective if they are a free rider.

A. The program is cost-effective, including free riders, and that's why we include the free riders in the program analysis, to make sure that on net, taking free ridership into account, the whole program is still cost-effective. If we can't, you know, if we can't give them what one of my staff calls a sodium pentathol question, and find out if they would have done it anyway.

Q. Exactly. So it's an assumption as to free riders, first of all. But my point is that people may then say, "Hey, this is a great program, I'm going to participate, too." It is those people who aren't included in the assumption, those free riders, it is not cost-effective, is it?

A. That's right. If it ends up being -- the number of free riders ends up being much higher than we estimated, that could have an impact on the cost-effectiveness.

However, I think what's critical is that you have to look at our free rider assumptions, and they are based on our best analysis of the marketplace at the time, and what we also look at over time is the net impact.

Q. All right, my second concern is with respect - we have spoken about the amount of money that - the incentive there for someone to participate in a program, is the revenue they would save in usually purchasing their electricity, plus the subsidy, correct?

A. Well, I think what we have been calling incentives in the last few days here. We have had a number of different definitions going from allowing people to use our research facilities, down to the specific dollars that we paid out.

I think in terms of what certainly I and what is said in the PCRD, when we are talking about incentives, we are talking about so many dollars per kilowatt that we are going to pay a customer to do something, or so much per light bulb or whatever. It is not the bill savings. We don't consider that "an incentive."

Q. But there is this, we will call it an incentive then. There is an incentive, for example, we

will take a boiler, an incentive to purchase a new boiler at the plant.

A. If it is more efficient.

Q. The more efficient boiler, the amount of efficiency, the amount of electricity saved, that amount, and if the subsidy corresponds to that amount up to the avoided cost, as we have noted, that's the amount that they will receive for that energy efficient --

A. They will determine the incentive, based on what is required to move the market. That could be 10 per cent of the incremental costs, it could be 100 per cent of the incremental costs. The upper limit that we do use is full avoided cost, but in practical purposes it is actually less than that, because we have to take the program delivery costs off. What you are really talking about is utility cost test.

Q. You would ask for a receipt then. That is what you are referring to in the transcript. You would ask for a receipt that they actually did purchase that new boiler.

A. Sure.

Q. Is it not then possible, given the limited resources of the auditing, is it not then possible that the individual then could use their old

boiler and run it off utility generation, could run it whether they want to use oil or something else, but they could still run their old boiler, they could purchase generation off the utility, non-utility generation outside the province? Could they not do that?

A. Well, there are certain requirements in different programs, for example, and it is treated different ways for different places. Lots of times it is, in the street lighting program, for example, part of the signed agreement was that those street lights had to be removed and not sold anywhere else in the province. They had to be scrapped. We certainly did not want to see them sold somewhere else. Lots of other times.

So that's part of the process. Our field staff go in and see, with lighting it is not really an issue, lights; motors are usually replaced upon burn out, so on, so forth. It totally depends upon the program. If it is a brand new building, of course, all you are doing is throwing the old design out.

Q. But in your program design, you try and prevent these sorts of things from happening.

A. Absolutely.

Q. There is only so much policing or

auditing you can do, until it becomes no longer cost-effective, right?

A. That's why we have a process in our programs called program evaluation, which looks at both the process evaluation and impact evaluation. That issue that you talked about would surface in an impact evaluation primarily. We don't pay more to avoid it than the cost of doing it.

Q. And in fact you don't have, for example, a team like the tax people would have to go around and audit to make sure that these things have been used, that everything that is said to Ontario Hydro is correct and this is the way it is used.

A. Well, in actual fact what we have done for the past two years, and I expect that we will continue to do it, is we do verify our results at the end of each year. And we hire a chartered accountancy firm, and on a random sampling they go back out and find out what happened to the displaced equipment and so on and so forth. So, that is exactly what we do. But not for every one. We did it on a random sample basis, and obviously we gear it to programs where that might be more of an issue than others.

Q. If in fact the person was going against what the program said they should have been

doing, then what happens?

A. Ask them for some money back.

Q. You you have the enforcement mechanism to do that.

A. That is part of the signed agreement that they signed. If the energy savings aren't there or the equipment is not in use or a number of things like that.

Q. That's on every program, or are you suggesting specific programs?

A. There is a materiality element with respect to that.

Q. There are also, Ms. Fraser, I'm sure that you have been doing it for some time, there are many other ways that one could think of, where they could try to get around this. There is a real incentive for them to, in fact, keep the revenue, get the subsidy, and a real incentive there with that extra money, if they could put to use the old energy producer, there is an incentive to use it.

A. Well, I would disagree that we are building -- that we are operating on the basis that most Ontario billpayers are about to engage in some kind of fraudulent activity. But again, remember what we are talking about here is an incentive that deals

with the incremental costs. In most of the cases we are not paying the full shot. So that situation where, you know, we are not paying someone to buy a second car and just park it in their driveway, if that's the issue you are concerned about.

Q. You have to also include the money that they didn't spend, correct? And that changes things, the lost revenue?

A. Sure.

Q. Now with respect to the light bulb sample that you were speaking of with Mr. Poch, and that's at the bottom of 9006, the question is:

"Let me jump to the bottom line. In a well designed program, you could put controls in place either by yourself or yourselves installing or through third parties which would ensure that the bulbs ended up in places which were high-use places, is that true?"

And you indicate that is true, correct?

A. Ms. Mitchell?

MR. McLELLAN: A. Yes, Ms. Mitchell indicated that.

Q. The amount of money, I'm sure we could do it, but there is a limit to how much we are

going to regulate, how far we are going to regulate ensuring that individuals use these bulbs in high end uses, correct?

A. Yes, and in that program that was not considered cost-effective.

Q. So when we see that we could have put controls in place where third parties go around to ensure the bulbs are in high end use places, that is not cost-effective?

A. No, and we wouldn't do it in a program such as the one running, where the customers expected to pay about 75 per cent of the cost of the light bulb. So given that they are paying that amount of the cost, they have a vested interest in using it effectively and efficiently as well.

...

[3:15 p.m.] Q. You are speaking of the Loblaws program?

A. Or the program we have going on right now with all retailers.

Q. The fact that they have incentive to use that $20 wisely, that isn't necessarily borne out by the actual results, though, are they, in terms of how many people actually apply for the subsidy, the free $5 that you are offering?

A. About 40 per cent of the people who purchased bulbs during the program period actually applied for the rebate.

Q. So, a free $5, 60 per cent didn't even ask for five bucks?

A. Right.

Q. So, if we are going to assume that people, because of the money they spent, are going do use it wisely, there may not be a strong correlation there.

A. Well, there is a couple of issues there. The first is the reason why people bought the bulb in the first place. They didn't buy it because we were giving them $5. They had to pay $15 as well. They bought it according to our research because they could save energy, save money and there was was a fair

level of environmental consciousness in there as well according to our research. So, these are the types of people who are purchasing the product, and according to our research they put it in quite high-use locations. Now, our research is not exhaustive, we didn't check out exactly how many minutes of use, but it was quite high.

Q. But in the light bulb one where you say save energy, save money and environmental reason, the program had been around before it went into the Loblaws green program; correct?

A. Not in the residential, no.

Q. But it had been around in the commercial?

A. Do you mean the product?

Q. Yes, the product.

A. It had been around in the commercial sector for a number of years, but was virtually not available in the consumer retailer market.

Q. And when you say they did it to save money, 60 per cent of them didn't send back for the $5?

A. That's right. But keep in mind that you have to compare that to similar rebate programs run by other companies, not utilities but other companies. A 40 per cent rebate redemption rate is considered

extremely high.

So, more people applied for the incentive through our program, then would have applied, let's say, you buy a Braun shaver and you are offered $10, a typical redemption rate for that kind of a rebate program is more like 10 per cent, whereas we got 40 per cent claiming.

Q. Well, a Braun shaver costs a lot more than a light bulb.

A. $60 or $80. A little bit more more.

Q. And the other issue also that is it not true that -- let me ask you, from the program itself, if you used it according to the Ontario Hydro instructions in high end use places for a total of seven years, how much money would it save you in electricity savings?

A. The number I believe was $27 over the life of the bulb.

Q. And the $5 rebate then would be 20 per cent?

A. 20 per cent of what? I'm sorry.

Q. 20 per cent of total savings.

A. Yes, okay.

Q. And then finally, your last point was the environmental reasons, and in fact it was put off

or was sold through the green program at Loblaws as an environmentally friendly item?

A. Yes.

Q. Now, of the amount of money that was spent by the consumer, plus the amount of money that was spent by Hydro in subsidies, that amount of money, there was never a cost-effectiveness test done on the benefit to the environment from putting that money into some environmental control as opposed to spending it on the fluorescent light bulb, was there? There was no cost-effective study done?

A. No.

Q. So though it was sold and it may have looked like an environmental program, there was never any direct flow of money from that program to any environmental controls, no actions were taken by Ontario Hydro with respect to environmental matters in that program?

A. No. The environmental benefit was because of decreased electricity there would be an environmental benefit.

Q. Correct. Now, if you look at, just while we are at it, if you look at Interrogatory 4.2.32 of Energy Probe, and I will get an exhibit number.

THE REGISTRAR: 261.27.

---EXHIBIT NO. 261.27: Interrogatory No. 4.2.32.

MR. MATTSON: Q. Now, if we look at the response, I am just going to direct you to the response, the questions with respect to 10 per cent fewer number. In your response at the bottom, if 10 per cent were installed in basements, you indicate that Hydro's market research has found that approximately 10 per cent of the compact fluorescent lamps purchased were installed in basements. Previous market research indicated that basement lights are used for an average of 1.5 hours per day. Savings for these applications still accrue but are spread over a longer period of time; correct?

Here is 10 per cent that certainly weren't in high end use places?

MR. McLELLAN: A. Right.

Q. And certainly if those factors go back to the programmers who did the total customer cost test, that would be a new factor that would have to be taken into consideration into the cost-effectiveness of the light bulb?

A. Yes.

Q. And those 10 per cent on their own, were they cost-effective, that 10 per cent of light bulbs in the basement that were burning for 1.5? I see

savings for these applications still accrue but are spread over a longer period of time; is that correct?

A. That statement is correct, yes.

Q. But are they cost-effective?

A. By themselves?

Q. Yes.

A. We didn't do a run separately for that 10 per cent mainly because we didn't know who that 10 per cent would be. The average use that we used when we did the original runs, the TCCT runs on this program, included a number of people that would use them short periods of time. The average used for the program was four hours.

So, a number who only used them 1.5 hours a day were included in that average and a number that used them for eight and nine hours a day was used as well. So by themselves, no, but in the context of the program, yes, they were included.

Q. The fluorescent light bulb campaign, save energy, save money and environmental benefits, if we took the environmental benefit out, if we weren't selling it or marketing under the environmental benefit, purely as a cost-effective device for the homeowner, do you have since that time or prior to that do you have any indication of how well this light bulb

would have been sold if we weren't attaching it to having this environmental benefit?

A. Since that program ended, which was early December last year, we haven't had nearly as much environmental tie in any of our program materials, neither have any of the retailers who have sold it. Loblaws is now just one of 10 or 15 retail chains who are selling it.

So, the environmental appeal is far less prevalent and sales, if anything, have gone up.

Q. But the environmental appeal was attached to it originally. I mean, if you hadn't had that, for example, prior to that, there weren't many of those bulbs that were selling in the residential or commercial sector.

A. Well, it's largely hypothesis, but the year before, in 1989, we ran a program through Home Hardware, compact fluorescents were one of about 24 products. There was no environmental appeal at all in that program, and sales were what I would say is quite reasonable within the context of that program, somewhere around 3500 units. One program buried amongst 24, less specific promotion.

So, my guess would be, it would have affected sales somewhat but I can't quanitify how much.

Q. 3500 units and then once you attached it to the green program, you predicted I believe 25,000?

A. 30,000.

Q. 30,000. And there was a demand for...?

A. About 100,000.

Q. 100,000. So that is a huge leap.

A. Yes. But in the previous program it was one of 24 products all advertised together. No specific emphasis at all. So, it's a totally different program. You can't compare them.

Q. Okay. I will move on now to another area. This morning we filed a new exhibit, that is Exhibit No. 286, which is entitled, "Let Market Work to Save Energy." I bring it to the attention today because what I would like to discuss with you, Mr. Burke, or question you, is with respect to statements made at page 8429 to 8431 of the transcripts, I believe it was, it may have been Ms. Fraser.

THE CHAIRMAN: What volume, please?

MS. PATTERSON: 47.

THE CHAIRMAN: Thank you.

MR. MATTSON: Yes, Volume 47, page 29 to 31.

MS. FRASER: I believe it's Mr. Shalaby, actually.

MR. MATTSON: Mr. Shalaby.

MS. FRASER: Page 8429?

MR. MATTSON: At page 8429, at lines 9 and 10, there is a discussion about the total customer cost test and the number of names it goes by.

Mr. Shalaby, the question was put to you, by Mr. Campbell:

> "Now, is it a problem when you are looking at this test that in some of those jurisdictions, you have investor-owned utilities which, of course, is a somewhat different situation than Ontario Hydro?"

You go on in you answer, it's really perhaps an added complication. And if you go to the next page at 8430, between lines 6 and 12, you state:

> "The impact on the shareholder is yet another dimension to worry about or to look at. Shareholders are typically interested in the net profits of the utility. And demand management programs can really erode the earnings of the utility and become a detriment to the

investor."

And then at the bottom of the page, you indicate:

"Now, that added dimension is really absent in Ontario and in that sense is not an impediment to aggressive pursuit of demand management, and that is, of course, our shareholders are the same as our customers."

Now, Mr. Shalaby, the exhibit I have provided you with is an article, an editorial which points to a study done by Mr. John Thomas Barnard who states that if Ontario Hydro, at the bottom of the page, he is an economist and director of the University of Lavalle's Group, he states that if Ontario Hydro was to earn a rate of return and pay taxes appropriate to private sector capital, electricity would have to be priced - and he states Quebec, B.C., and 65 per cent higher in Ontario.

And then he goes on and says:

Those increases would very likely convice industrial and commercial electricity users to conserve, and residential consumers might be less likely to respond and may need some other

encouragement, but at least the market would be sending the right signals.

So, the question to you is what you have put as an impediment to effective and aggressive promotion of demand management programs in the private sector may in fact be occurring naturally in those sectors, and it is in fact the public sector that really has to get out and aggressively pursue these programs.

MR. B. CAMPBELL: Whoa, whoa!

Mr. Chairman, this, I believe, may have been faxed to us Saturday, nobody looked at it before this morning morning. Nobody has seen this study upon which these numbers are based. Nobody has any idea of whether the numbers are correct or supported by any reasonable analysis.

I can advise the Board that Ontario Hydro's outside expert testimony on this matter when it was reviewed last fall before the OEB was that figures of that nature were inappropriate and should not applied to Ontario Hydro in the analysis of Ontario Hydro because of the different, in effect, corporate structure, as I say, the kind of cooperative structure that is behind Ontario Hydro's corporate structure, and I object strongly to any questions being premised on

anything like this material when there has been absolutely no basis layed for it at all. I don't see how Mr. Shalaby can fairly be asked to give any opinion on any aspect of this would be in any way useful to the Board. He has seen none of this material.

MR. MATTSON: Mr. Chairman, just in reply. The numbers themselves aren't important. I am just responding to Ontario Hydro's evidence that it is an impediment to demand management programs in the private sector, and all I am trying to do is establish from Mr. Shalaby if that's still his position, or if he can explain in light of what seems to me another explanation. That's all.

Energy Probe doesn't believe that that's the situation either, 65 per cent higher. So, that is just the study and it is a point of view and your evidence is that it is an impediment. That's all.

THE CHAIRMAN: I have not read the editorial either, it's a newspaper editorial and based on a reference to a study which nobody has, I think it is not probably a good basis for cross-examination. I think the cross-examination should be based on what Mr. Shalaby actually said in his in chief and the questions can be directed in that fashion.

MR. MATTSON: Thank you, Mr. Chairman.

Q. Mr. Shalaby, is it not the case that a public --

THE CHAIRMAN: And the best way to do it, if I can be so bold as to suggest, is to refer him to specifically what he said so he has his attention focused on it, and then ask him a question about it.

MR. MATTSON: Thank you, Mr. Chairman.

Q. Mr. Shalaby, at lines 23 to 25 at page 8430, you state:

> "Now, that added dimension is really absent in Ontario and in that is not an impediment to aggressive pursuit of demand management..."

We have gone through it, that added dimension is the shareholders I believe; is that correct?

MR. SHALABY: A. Am I going to get one answer uninterrupted finally?

Yes, that is a shareholder.

Q. And is it also the case that because these, a private utility with a shareholder, because they have to make a profit, in fact, there may be natural conservation going on due to the rates that would be higher to make that profit?

MR. B. CAMPBELL: I'm sorry, there has

been no basis established for the proposition in that statement that the rates would be higher, and I take the position that there is no basis for that.

THE CHAIRMAN: There is a basis that the costs might be different or the cost, or the total customer cost test might have different criteria, that's what I think Mr. Shalaby was saying.

MR. B. CAMPBELL: That it might be different is one question. That is with respect, Mr. Chairman, not what my friend said.

THE CHAIRMAN: All right.

MR. MATTSON: Q. Mr. Shalaby, you said that demand management may be a detriment to the investor; correct?

MR. SHALABY: A. The whole point of this discussion was that you have an extra player, you have an extra participant and that complicates life. When you have two people doing something it's complicated, when you have three, it's more complicated, when you have four it gets even more complicated. That's the entire gist of what I was saying.

You have somebody else in the picture, when you have a shareholder, Which complicates life a little more.

MR. BURKE: A. I would just like to add

an and element to this, and that is the return on equity in investor-owned utilities has not necessarily been very good in the U.S. for the last 10 or 15 years, and in fact may not be even as high as the rate of return on bonds.

So, it's not necessarily obvious that including a shareholder equity portion in the way that the corporation is financed in an investor-owned utility necessarily contributes to higher rates per se. It's something you have to demonstrate. It's not something that's obvious at all.

Q. But, Mr. Burke, it is in the evidence that Ontario Hydro's demand management programs will increase rates; correct?

A. Well, in principle, to the extent that the incentives exceed certain levels by definition, they will slightly push up rates. That is completely independent of all of this other consideration we are talking about now.

Q. That is fine. All I am asking is the demand management programs in Ontario Hydro will increase rates, you have answered that; correct?

...

[3:35 p.m.] MR. B. CAMPBELL: Mr. Chairman, with respect, I don't know what the heck the question is any more. We started out -- this started out -- this question has been addressed several times, and this started out with something to do with return on equity.

If we are no longer talking about return on equity, then that is fine. But I'm a little concerned that my friend sort of, in response to an answer, is saying, "But isn't it correct then that..." And I'm worried that this is going to be read that this return on equity consideration is being carried forward. If it is not his intention to do that, then that's fine, but I think I'm just concerned that the transcript be clear on that.

THE CHAIRMAN: I think Mr. Burke said, I hope I'm paraphrasing correctly, is that demand management programs along with everything else may have some impact on rates. The measurement of that impact is difficult, if not impossible, to say.

MR. MATTSON: Mr. Chairman, I don't -- that's why I'd like a clarification, because I don't believe that that is the evidence. I think that demand management programs on their own will cause rates to rise.

Q. Will it not, Mr. Burke?

MR. SHALABY: A. The evidence says that in the short term demand management raises the price of electricity.

Q. Okay, thank you.

A. This is an uneconomists version of the answer.

Q. Now if we turn to -- if you could turn to interrogatory 4.2.47.

MR. MATTSON: If could I get a number for that exhibit?

THE REGISTRAR: No. 261.28.

MR. MATTSON: No. 261.28.

---EXHIBIT NO. 261.28: Interrogatory No. 4.2.47.

THE CHAIRMAN: Is this a new subject?

MR. MATTSON: Same subject with respect --

THE CHAIRMAN: Same subject?

MR. MATTSON: Yes.

THE CHAIRMAN: All right. Sometime in the next few minutes if we could take the afternoon break, at your convenience.

MR. MATTSON: This would be an appropriate time.

THE CHAIRMAN: All right. Break for 15 minutes.

THE REGISTRAR: The hearing will recess for 15 minutes.

---Recess at 3:39 p.m.

---On resuming at 3:58 p.m.

THE REGISTRAR: Please come to order. This hearing is again in session. Please be seated.

MR. MATTSON: Thank you, Mr. Chairman.

Q. Mr. Burke, first of all, if you could just confirm my recollection of the evidence this morning, and your evidence was that, if I remember it correctly, was that rate increases would not play or have a large effect on Ontario Hydro's demand management programs as you see it, program efforts as you see it.

MR. B. CAMPBELL: I don't believe that -- if I recall it correctly, and Mr. Burke can correct me if I'm wrong, I don't believe that is correct. I think what was said is that the group would not have an impact on the potential that Mr. Burke has calculated.

MR. MATTSON: Q. Is that correct, Mr. Burke?

MR. BURKE: A. Well, I must admit I can't recall anything that is directly like that, except that --

Q. Well, Mr. Burke, we discussed rate

increases.

A. Yes, I thought -- the only issue I can remember was the one that has come up several times, is whether the effect of demand management in the programs would have a large effect on rate increases. But I don't recall the reverse.

We have also, oh, discussed the role of natural conversations. That is what we are talking about?

Q. Yes.

A. And I suggested that every year we would reestimate the effect on potential end use of the fact that the baseline price had gone up, and that we would do that this year.

I'm not sure I said how much I thought -- the difference I thought it would make. But yes, relatively speaking it is small.

Q. So relatively speaking, a small impact on --

A. On the net load impact of demand management programs.

Q. So it may, in fact, switch from potentially induced to natural?

A. That is quite correct. But it is not going to be one for one, in the sense that the price

effect has lots of other impacts on customers than simply efficiency improvement.

Q. Now I have directed your attention to interrogatory 4.2.47.

THE REGISTRAR: 261.29.

THE CHAIRMAN: That number has been given already.

MR. MATTSON: 261.28 is the exhibit number.

Q. The question is:

"What electricity price increases would be required to achieve the same decreases in electricity consumption targeted at Ontario Hydro's current conservation plan? Provide all assumptions and calculations."

And the next page in your answer we have the assumptions, three, and then we have the calculation 13.5 per cent, and concludes:

"Therefore applying EEMOs," that's Echometric Energy Model of Ontario, "long run elasticity suggests that a sustained real price increase of 14 per cent would be required to achieve the same decrease in electricity consumption targeted in

Hydro's current conservation plan."

My question to you, Mr. Burke, is in light of the Chairman's remarks about the rate increases that are much greater than the one we see in 13.5 per cent there, how do we reconcile that in fact Hydro's demand management targets are not going to be met by those rate increases alone, without having to induce them?

MR. HARPER: A. If I could maybe speak to that.

Q. Sure.

A. I think there is a -- the 13.5 per cent, as indicated in the interrogatory, is a real price increase that is over and above any inflation impacts, and that's over and above any real price increase that's built into the current load forecast.

If you look at the current 1990 load forecast, that was based in part on the business plan that was issued earlier in that year, and that business plan itself showed real price increases in the order of 10 to 12 per cent over the next say between 1990 and '93, '94.

So that one -- there is some real price increases built into the current load forecast, which is consistent with the Chairman's comments that, you

know, there will be double digit increases. And again, for those who just -- the Chairman's comments, we'll have to wait and see over the next two to three years exactly what price increases play out for Ontario Hydro and how those rate increases come out in real terms. I believe the Chairman was talking in nominal terms.

Q. All right, so in the current load forecast, rate increases are predicted at 10 to 12 per cent?

A. Yes, I believe the current real price increases falling out of last year's business plan were in the order of 10 to 12 per cent by the time you hit the year 1993, '94.

Q. And also --

A. Excuse me. I believe that material was actually filed in response to Energy Probe interrogatories at this year's Ontario Energy Board hearings.

Q. That's correct, and also here, yes.

So that 13.5 per cent that you are indicating there, that would -- that's a sustained real price increase that would be above what you have already included?

A. Yes.

Q. So if in fact rate increase is higher

than what's predicted, we'd be able to use this as a ball park figure sort of to judge by how much those rate increases would need to be before Ontario Hydro's demand management targets would be met naturally.

MR. B. CAMPBELL: Mr. Chairman, I have been kind of vibrating a little bit on this one, because I'm a little old fashioned on these matters. This answer that is given is immediately followed -- what's been read is immediately followed by some other extensive cautions. And I think my friend should also deal with those cautions, if he's putting this forward as Ontario Hydro's view of the matter.

THE CHAIRMAN: Other than to note the cautions are there, should he do any more of that?

MR. B. CAMPBELL: I --

THE CHAIRMAN: Which you have now done. Is there anything more we need to say?

MR. B. CAMPBELL: No, that's fine. But I think they should one way or the other be noted.

THE CHAIRMAN: Fine, thank you.

MR. MATTSON: Thank you.

Q. Now I'd like to move to my final area, and I hope to finish by the end of today.

THE CHAIRMAN: I should say that we have to leave sometime between 4:45 and 5:00.

MR. MATTSON: Thank you, Mr. Chairman. I will try my best.

Q. There is a number of interrogatories that I was referring to. I will go through them as they come up. It is probably the quickest.

THE CHAIRMAN: There is no need for you to rush, because we can carry on tomorrow morning, if you want to.

MR. MATTSON: I understand, Mr. Chairman. I'm just not feeling that well myself.

Q. If you'd turn to interrogatory 4.2.9?

THE REGISTRAR: 261.29, Mr. Chairman.

---EXHIBIT NO. 261.29: Interrogatory No. 4.2.9.

MR. MATTSON: Thank you.

Q. In the response at 4.2.9 at the bottom of the page -- well, the question, I will put the question on the record:

> "Please provide the most complete account available of the amount of energy used and the end uses for all unmetered and bulk metered loads for all customers on the Hydro system, including customers of municipal utilities. Provide an estimate of both the short-run and long-run reductions in consumption which

would result by individually metering and billing for each of these loads."

And the response at the bottom of the interrogatory:

"Hydro's individual metering program is expected to result in the adoption of individual metering in over 60 per cent of all new electricity heated multi-residential units built over the next five years, about 13,500 new suites, and a total reduction of 37 gigawatts per year is expected for 1995."

I'm not sure who my question should go to. Is it Ms. Fraser?

MS. FRASER: A. Probably me.

Q. Now these estimates that you -- the 60 per cent of all new electrically heated multi-residential units, why isn't it going to all new multi-residential units? Why 60 per cent?

A. In terms of the estimates that were done here and were correct at the time which this was filed, that was based on the level of participation that we thought we could get.

Since that program was approved, before it was implemented, it has not yet been implemented,

with the indication from the provincial government that they are looking at much more aggressive standards, we are now expecting to only deal with the individual metering program from a retrofit point of view and hope to be able to handle individual metering through a standard. That is still under discussion, however, and obviously a standard would get it all.

Q. If we look at Exhibit 279, which is the Porter Commission recommendation of metering, I think it is clear that this has been under discussion for a long time, correct? The Porter Commission is dated 1980, recommendation of the Porter?

A. It is dated February 1980, correct.

Q. Yes. And if we look at -- I have only provided the one page, and at 11.8, read into the record, it says:

> "To encourage the prudent and efficient use of electricity such features as declining block rates, uncontrolled flat-rate water heaters and and bulk metering of new electrically heated apartment buildings should be modified or eliminated."

This is 1980. And this indicates in your interrogatory that 60 per cent, some eleven years

later, are going to -- that would be Ontario Hydro's position to date, 60 per cent.

A. That if we implemented this program, which we are no longer at this point going to do, we expected to increase it to 60 per cent. I believe there is another interrogatory which you indicated that you would be referring to that has a whole history--

Q. Right.

A. --of -- it's quite a tale of woe with respect to individual metering in the province of Ontario. That there was attempts back subsequent to the Porter Commission to implement individual metering on a broad scale, and at that point the decision by the government not to do so.

Q. All right, and that interrogatory response was 4.2.43? Is that what you'd be referring to?

A. Yes, that's the complete history, as we know it.

MR. MATTSON: If I could have an exhibit number for that, 4.2.43.

THE REGISTRAR: 261.30.

MR. MATTSON: Thank you.

---EXHIBIT NO. 261.30: Interrogatory No. 4.2.43.

MR. MATTSON: Q. Now Ms. Fraser, in

interrogatory 4.2.9, I was wondering if those results or the expected results and the adoption of individual metering includes commercial suites, or if that has been excluded?

MS. FRASER: A. Commercial suite? What do you mean commercial suites? It is only for multi-residential buildings?

Q. Business, not multi-residentials. Are there any figures with respect to commercial suites?

A. No, at this point we have -- are looking at doing some tests with respect to individual metering in buildings such as this. It was one of the barriers that I indicated in my direct evidence was an issue that we were trying to address.

MR. MATTSON: Interrogatory 4.2.39? I will get an exhibit number for this as well.

THE REGISTRAR: 261.31.

---EXHIBIT NO. 261.31: Interrogatory No. 4.2.39.

MR. MATTSON: Q. The question asks, HR 19, Exhibit 3.8.6:

"Ontario Hydro indicated that Hydro encourages municipal utilities to end all unmetered services. Please provide a complete report of all efforts to

encourage municipal utilities, including all documents. Indicate a complete assessment of the results of these efforts."

And your response starts at:

"Hydro's efforts to encourage municipal utilities to end unmetered services that could be fostering unrestrained energy use have been going on since the late 1960s."

MS. FRASER: A. That's what it says.

Q. And those efforts haven't been successful today, I take it.

A. No.

Q. Why is that?

A. Partially they have. There have been a big change. The number -- we have moved from a situation where municipal utilities require bulk metering, and there is still some municipal utilities that do, due to the fact that we now have mixture of utilities, some of which allow it, some of which require it. With 300 plus municipal utilities, that condition of service is up to them to determine, and it is something that we have only been able to use moral suasion with respect to the issue.

Q. So it is not -- Ontario Hydro's efforts are on the record as going towards unmetered services. It is implementing --

A. We are encouraging the metering of services, not encouraging the unmetering of services.

Q. Okay, and you are encouraging it to 100 per cent, if you could?

A. If we could, sure.

Q. The problem is the MEAs or the municipal utilities?

A. Well, the -- well, there is some places where it is cost-effective to do it, some places where it isn't. I mean, street lighting I don't think is a big issue. With respect to multi-residential buildings, I believe it is a significant issue.

We have been on record, you know, for two decades saying that we should be moving towards individually metering these things. That, you know, the move towards that was turned down by the government. We're going to go back to Exhibit 261.28 and trace that focus for whatever number it was.

Q. Is the story how the government stopped it in there, too? Is there somewhere in there where I can see what you mean by the government stopped it?

A. They were going -- they announced that they were going to do it, and they decided not to basically.

Q. They were going to do what?

A. Require it by standard.

Q. Require Ontario Hydro --

A. I'm trying to find the reference. If you could point it to me again, I would be appreciative.

Q. Oh, 4.2.43.

MR. B. CAMPBELL: That one has been referred to, Mr. Chairman, as Exhibit 261.30.

MR. MATTSON: Thank you.

MS. FRASER: You want me to read it to you?

MR. MATTSON: Q. No. When you say the government stopped it, we see that the attachments to it, there is a number of letters, and the letter from the municipal utilities of August 16, 1985. When you say the government stopped it, can I read that there? Is it somewhere that I don't see that. And if maybe you could explain it to me.

MS. FRASER: A. Okay. By the second last paragraph:

"By mid 1983, the moratorium related

to bulk metering was resolved by the Minister of Energy by allowing the local service areas, i.e., the municipal electrical utilities, to develop the type of metering to be used in new multi-residential buildings. See attachment 4, letter from Robert Welsh dated June 1983."

Q. All right. But, Ms. Fraser, and I will refer to an interrogatory, 4.2.42, and if I could get an exhibit number for that.

THE REGISTRAR: 261.32.

---EXHIBIT NO. 261.32: Interrogatory No. 4.2.42.

MR. MATTSON: Q. 261.32, I think it is clear from your answer that Ontario Hydro has the regulatory power to force the municipal utilities to do that, doesn't it? And that they have no intention of doing so? The decision rests with Ontario Hydro.

MR. B. CAMPBELL: I am sorry, could I see that please? Could I know what reference you are referring to?

MR. MATTSON: 4.2.42.

Q. I will read the question:

"Does Ontario Hydro have any intentions of using financing or

incentives on one hand, or regulatory controls on the other, to cause municipal utilities to implement individual metering or to terminate unmetered or bulk metered service? If so, provide a complete explanation of Ontario Hydro's intention.

The response:

"Hydro does not intend to use regulatory controls to cause the municipal electrical utilities to implement individual metering, or to terminate unmetered or bulk metered service."

MR. HARPER: A. Perhaps If I can help on that. I think it is my understanding that Ontario Hydro does not have the regulatory authority to force utilities to adopt individual metering in apartment buildings, as opposed to bulk metering. And I think that is very consistent with the letter Ms. Fraser referenced from Robert Welsh, attachment 4, where in the second paragraph he says:

"The decision and the type of metering to be used in new multi-residential dwellings is the

responsibility of the local utility, or Ontario Hydro where appropriate."

I think "or Ontario Hydro where appropriate" recognizes that Ontario Hydro has certain retail service areas as well.

...

[4:15 p.m.] So, it's the decision of the local utility as to whether they are going to use bulk or individual metering.

Q. But Ontario Hydro regulates the rate; correct?

A. Yes. We regulate the rates, and in a room of full of lawyers I am a little bit hesitant to go into exactly how that works. But we approve the rates that they are going to offer, but that is the rates that they offer to their customers.

Q. And if Hydro approves unmetered rates, then that's basically approval?

A. Yes, in that sense. I think we have to have watch what we are talking about here. The bulk metered buildings, the multi-residential buildings are metered. If you are talking about unmetered rates such as streetlighting rates that Ms. Fraser was talking about earlier, then yes, we do approve the rate for streetlighting and the rate is pretty easy to come up with. You know how many hours a month streetlights are on, you know how many kilowatts of bulbs you have installed, you can work out pretty easily what the cost per kilowatt should be and that's how the rate is worked out.

The same for sentinel lights which in

certain cases is impractical to meter those sentinel lights but you know what the wattage of the bulb is, you know it comes on at dusk, back off at dawn, it's pretty easy to work out precisely what the rate should be. And if you are working on photovoltaics, probably changing in the rate is not going to change the customer.

It's much more effective to do the streetlighting programs like Ms. Fraser is involved in and encourage the utilities to go to high efficiency bulbs.

Q. If we look at Interrogatory No. 4.2.35, and I will get an Exhibit No.

THE REGISTRAR: 261.33.

MR. MATTSON: Thank you.

---EXHIBIT NO. 261.33: Interrogatory No. 4.2.35.

MR. MATTSON: Q. The question is:

> Please provide Ontario Hydro's best estimate of reduction in electricity consumption when customers are switched from bulk metering to individual metering.

And the response is:

> Hydro represents 20 per cent reduction in electricity consumption occurs when

customers are switched from bulk metering to individual metering.

Can anybody respond to where is that study from?

A. I believe it's the same study that was referenced in the Interrogatory 4.2.43, there was a study undertaken in, I believe, the late 1970s, looking at bulk versus individual metering and it is contained in there.

Q. All right. And Mr. Harper, is this the short-term elasticity?

A. I'm sorry, beyond that, that's about the extent of what I know about that number.

MR. MATTSON: Mr. Chairman, could I ask that an undertaking be given that we be provided with that study? We don't have it.

MS. FRASER: I believe it's filed in PCRD Volume 3, which would be in the reading room.

MR. MATTSON: Q. That's the 1970 study?

MS. FRASER: A. Yes. Its references document 9A under the multi-residential individual metering.

Q. A 20 per cent reduction in electricity consumption, it's a great deal of savings; is it not, Ms. Fraser?

A. It certainly is.

Q. And Ontario Hydro has no way of knowing how much savings there are out there because you are not sure what the load is on metered service and bulk meter right now; are you?

A. No. As Mr. Harper pointed out, we know the number of suites that are in buildings that are bulk metered. We are not saying those buildings don't have meters. What they don't have is a meter for every suite.

We calculate that there are 450,000 bulk metered suites in Ontario. Now, there are 225,000 of those with electric space heating, so on and so forth. And that's all filed in both Volume 1 and Volume 2 of the program concept reference document.

MR. MATTSON: All right. Might I just get an Exhibit No. for Interrogatory 4.2.34.

THE REGISTRAR: 261.34.

---EXHIBIT NO. 261.34: Interrogatory No. 4.2.34.

MR. MATTSON: Q. Ms. Fraser, that just sets out that response of yours that as stated in Interrogatory 4.2.29, Hydro has not undertaken a comprehensive analysis of unmetered loads and consequently is unable to provide much of the information requested.

That's the situation.

MS. FRASER: A. Are you talking unmetered loads in multi-residential buildings?

Q. Yes.

A. That's not the what question asked. The answer went on to say: However, in multi-residential buildings, we know how much from individual metering in multi-res.

All you are really talking about here is the issue of the level of metering, not the fact that it's unmetered. We don't give electricity away free to people that live in multi-residential buildings.

Q. Ms. Fraser, I think that they are set out at 4.2.43, and I will leave -- we have made that an exhibit?

That also sets out the situation with respect to the problems implementing time-of-use rates?

A. 4.2.43 which is Exhibit 261.30.

Q. Times-of-use meters. It's also referred to. I will get an exhibit number for it. Just so it's on the record as 4.2.40, interrogatory of Energy Probe.

THE REGISTRAR: 261.35.

---EXHIBIT NO. 261.35: Interrogatory No. 4.2.40.

MR. MATTSON: Q. It goes more

specifically to the question:

What is Ontario Hydro's assessment of the availabilty of time-of-use meters for residential applications and what are the barriers to availability?

Do you see that?

MS. FRASER: A. Yes. We are talking about a whole different kettle of fish now.

Q. Let's go to this. The prime barriers to the availability of time-of-use meters include, and first of all, high cost. Can you explain?

MR. HARPER: A. I think as I indicated in a response to cross-examination by the government lawyer, the estimated cost of a time-of-use meter for residential customers is in the order of $250 plus, say, under $50 for installation. So you looking at $300 for a meter. Whereas, a comparable meter without those time-of-use features like you have on the side of your house right now might be something in the order of $100. So, you have got a significant incremental cost there.

Q. And sufficient demand to warrant manufacture?

A. I think it is pretty clear that a manufacturer isn't about to produce a product unless he

feels there is some demand for the product.

Over the last number of years we have been working on implementing time-of-use rates at the wholesale level within Ontario, and it is only after they have been implemented at the wholesale level to the municipal utilities, that you would then see them extended on down to individual retail customers. So, without a market for those meters, manufacturers are obviously hesitant to get in the market of producing them.

Q. If there is going to be a market it's going to be created by Ontario Hydro, though, isn't it, as you have the monopoly over the transmission of electricity in the province? The market would be created by your demand.

A. We are talking here about time-of-use meters for residential applications. By far and large most of those residential customers lie within the service territories of municipal electric utilities in the Province of Ontario.

Q. But you regulate the installation of these meters, do you not?

A. We don't regulate the installation of the meters, no. The type of meter that's used as indicated in the interrogatory here is basically

regulated and improved by Consumer and Corporate Affairs Canada.

Q. But the installation of the meter itself is Hydro's jurisdiction, Hydro's responsibility; correct?

A. No. The municipal utility whose service territory that residential customer is in would be responsible for installing the meter.

Q. And finally, the prime barrier is the time required for approval of meters?

A. Yes, I think that's as indicated in the response itself in the sense that approval can require 12 to 18 months.

Q. All right. But as we have referred to Exhibit 279, I referred to earlier, the Porter recommendations in 1980, I guess it's more than 10 years ago, at 11.7, Ontario Hydro should include in its test of time-of-use rates not only the assessment of customer responses concerning willingness to change, personal energy habits, but also the required technology. And there has been a lot of time passed with respect to time-of-use meters, and to put as a prime barrier the time required certainly shouldn't be all that large a barrier. You have had a lot of time to know about it.

A. No, I think the question asked for what are the barriers, and in my mind, if I look at that, the prime barrier over the last while, since the Porter Commission, there has probably been a second one, and that is sufficient demand to warrant manufacturers, sufficient indication that there is actually going to be a market within Ontario.

Q. And you have indicated the prime barrier here then are the MEAs, the municipal utilities?

A. No. Until you have time-of-use rates being charged to municipal utilities at the wholesale level, there is really little, if any, basis for them to charge time-of-use rates to their retail customers, be it their residential, general service or large user customers.

As I have said, we have been working since the Porter Commission issued its report in terms of putting time-of-use rates in place at the wholesale level within Ontario, we implemented them in 1989. We have right now one new -- actually two new municipal utilities that have approved rates for residential customers for time-of-use rates. I think that is part of what has lead to the one meter going through and receiving approval and there being more interest by

manufacturers in looking at putting up prototypes and putting these meters through for approval. To them it's a bit of a chicken and egg process, they don't want to go through all the expense of getting meters approved if there is not going to be a market to sell them into.

Q. Any demand management program with respect to time-of-use rates is going to need the willing participation of the MEAs?

A. Yes.

MR. B. CAMPBELL: We are talking at the residential level here now.

MR. MATTSON: Yes.

MR. HARPER: Yes.

MR. MATTSON: Q. The general level, and I am almost finished, in a general level, and I will ask Mr. Burke, Hydro's demand management programs, the cost-effective tests that are done by Ontario Hydro planners, ultimately doesn't all their success - not all their success but a major portion of their success - depend on the cooperation of the municipal utilities at some point?

MR. BURKE: A. I am not sure I am the right person to answer that. But maybe before anybody gives any answer, it's not clear to me that there is a

relationship between the cost-effectiveness tests, was I think was in your question, and who actually delivers the program.

Q. Well, is it not clear, Ms. Fraser, that you just provide a menu to municipal utilties; correct, a menu of tests that have passed your cost-effective test, programs?

MS. FRASER: A. We provide a menu of programs which the municipal utilities can participate in if they wish. However, a great deal of a number of our programs, customers can participate in it whether the municipal utility participate or not.

Q. What percentage would you think, residential? Like, I know that the compact fluorescent light bulb went through Loblaws so it went around the municipal utilities, but what percentage?

MR. McLELLAN: A. Virtually all residential programs would fall into that class with the exception -- well, non-gas or gas areas is kind of an issue because most municipalities have gas, but virtually all of Ontario's customers could participate with or without the corporation of their utility.

Q. All right. And what percentage of programs per commercial/industrial use going through municipal utilities could they participate in without

municipal utilities?

MS. FRASER: A. I would say that 100 per cent of our programs are in place respective of the participation of the individual municipal utility. However, where the municipal utility provides systems and staff and works with our field staff, obviously the take-up can be a lot richer. It's not an issue of either or; it's a question of many hands make light work.

Q. I understand that. Can you give me the 100 per cent again. 100 per cent are in place?

A. Basically our program right now, our customers can participate in any of those programs with the exception of the design of the individual metering program which is limited to areas where municipal utilities allow participation. But that is not running yet. So 100 per cent of the ones that are up and running.

MR. MATTSON: Thank you. Those are all my questions, Mr. Chairman.

THE CHAIRMAN: Thank you, Mr. Mattson.

We won't be sitting tomorrow morning but we will be sitting tomorrow afternoon commencing at 2:30 when the Ontario Natural Gas Association will cross-examine the panel. We are adjourned until

tomorrow afternoon at 2:30.

THE REGISTRAR: This hearing will adjourn until 2:30 p.m. tomorrow afternoon.

---Whereupon the hearing was adjourned at 4:35 p.m. to be resumed on Tuesday, September 10, 1991, at 2:30 p.m.